THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

FEBRUARY, 1884.

ON THE DIFFERENT MODES OF ADMINISTERING MEDICINE IN VETERINARY PRACTICE.

BY A. E. MACGILLIVRAY, BANFF, N.B.

IT seems a very simple matter to give a ball to a horse, or a drench to a cow, and yet neither of these operations are without more or less danger. A few horses, and innumerable cows and other cattle, have been choked while undergoing such apparently very simple and commonplace, though absolutely necessary administrations. In general, the operator must be held guiltless of these untoward accidents. For my own part, I would far rather give three balls, than run the risk of pouring over one drench or draught.

But there are other modes of administering medicines to the lower animals, and of these the most important are the subcutaneous or hypodermic, and the tracheal. The hypodermic method has already been considerably practised in this country, although not nearly to such an extent as it ought to be; but, in so far as I know, the tracheal mode is entirely foreign to the British veterinarian—at least, it is so practically.

We also exhibit certain medicines *per rectum*, *per bladder*, and *per vagina* and *uterus*; but, unless *per rectum*, these are usually merely of local importance, *i.e.*, their action is intentionally confined to the cavity into which they are injected. The epidermic administration of certain remedies is also not unknown in veterinary practice, such as the inunction of cod-liver oil in

various cases, and the application of sedatives. These, however, are of comparatively rare occurrence, and scarcely need to be noticed here.

Although the subcutaneous application of medicines has become far from uncommon in this country, still the practice has hitherto been almost solely confined to sedatives and nerve stimulants. Of late, however, our French *confréres* have been giving us an example how to extend the benefits to be derived from the use of the hypodermic syringe. Notably has this been so in the case of M. Cagny. This enterprising, intelligent, and scientific *vêtérinaire* has been making a series of experiments in cases of impaction of the manyplus (omasum or *feuillet*), with *sulfate d'ésérine* and *vératrine*, injected subcutaneously in the neighbourhood of that particular portion of the bovine digestive apparatus. M. Cagny claims perfect success with such treatment, relief following within twenty-four hours. Certain of M. Cagny's professional brethren deny the existence of the abnormal condition of omasum referred to, and argue that M. Cagny is wrong in his diagnosis; and even if correct, doubt so speedy a removal of impaction of the *feuillet*.

M. Cagny has also used the sulphate of eserine in cases of loss of appetite, protracted parturition, Milk Fever, and as a laxative in Typhoid Fever; but, owing to the high price of this *sulphate*, he has lately been substituting *veratrine*, with equal success. I may just mention that eserine is the active principle or alkaloid of the Calabar bean (*Physostigma benenosum*), and veratrine the alkaloid of Sabadilla seeds (*Asagræa officinalis*).

I have already chronicled in these pages the subcutaneous use of Ol. croton in cases of Founder; and in addition to that M. Cagny has successfully used the same injection in the eradication of certain tumours where ligatures were inapplicable.

Injections of sulphate of eserine or veratrine have also a most beneficent effect on "broken-winded" horses, either as a hypodermic application or *per* trachea. Relief is almost instantaneous; a cessation of the heaving at the flanks taking place immediately, and even quick progressive movements may be accomplished with ease. These two medicaments also rival the new and very efficacious therapeutic agent, *Pilocarpine*, in cases of

Angina or sore-throat, the subcutaneous or tracheal injection of either of these producing instant relief, as regards tension and difficulty of breathing.

It is now some years since Captain Russell and Mr. Fearnley brought prominently before the profession the subcutaneous injection of morphia; and in the year 1880 I published an article in the *Veterinarian*, giving a long detail of my experience in using the "Injectio Morphiæ Hypodermica," and as to its therapeutic value in certain cases. I have been using the hypodermic syringe for nearly fifteen years, but for a long time confined myself to the use of the above injection.

Recently, I have been experimenting hypodermically with sulphate of quinine; this is a most valuable and extensively-used medicine in human practice; but, owing to its great cost, it is seldom prescribed in our profession, as the chemist's bill for the requisite doses (*per* stomach) would soon run up to an alarming amount. The hypodermic syringe will, I am confident, enable us to utilise and reap the benefit of the beneficent properties of this invaluable therapeutic agent. Quite lately I had two very high-priced cattle under my care, and in both these there was considerable irritative fever and danger of absorption of diseased material. In one, with large sloughing sores in the interdigital spaces of the fore-feet, and showing the following symptoms, namely, blowing hard, dry muzzle, want of appetite, grinding of teeth after the usual invalid bovine fashion, and temperature 105°, I gave a pretty large dose of sulphate of quinine *per* stomach, *with good effect;* seeing which, and knowing that it would never do (pecuniarily) to continue such doses *per* stomach, I resolved to adopt the hypodermic method with an acidulated aqueous solution of quinine—1 to 5. Of this I began with 30 minims hypodermically, being just $\frac{1}{10}$th of what was necessary *per* stomach. Both my valuable patients did well.

In a highly-bred polled heifer, or rather young cow, which was recently under my care, having been severely torn during parturition in both roof and floor of vagina, there was much irritative fever, abominable smell, almost constant pains, and, in my opinion, hourly danger of absorption of part of the sloughing lacerated parts of the vaginal walls. I gave six-grain doses of

quinine hypodermically, in addition to frequent irrigations of the vaginal walls with a strong aqueous solution of carbolic acid. This heifer or cow came all right. I consider the action of quinine very efficacious in such cases, preventing alike the rigors so commonly seen here, and the absorption of diseased material, and keeping down the almost certain greater or less amount of sympathetic fever.

I remember some years ago losing a magnificent black-polled quey, by absorption of diseased material from a lacerated vagina—a real case of blood-poisoning, all the leading characteristics of the same being but too well marked on *post-mortem* examination. I am certain this quey would have brought 250 guineas at the present time!

The cinchona alkaloids may be used, both hypodermically and per trachea, for a great many maladies, and at far less expense than per stomach. In fact, the hypodermic syringe ought to render quinine quite a "standing card" in veterinary therapeutics.

Turning to the tracheal mode of administering medicines to the lower animals, we find quite an enthusiastic expounder of that method in Dr. Levi, of the University of Pisa. His memoir on the subject has been published in French, and may be had for about 3s. 6d., and ought to be in the hands of all who can appreciate "something new" and useful. M. H. Bouley, the talented editor of the "Recueil de Médicine Vétérinaire," has given us a very good critical synopsis of Dr. Levi's book in the pages of the "Recueil" for 15th March and 15th April last, and M. Cagny has introduced the subject at the meetings of the French Central Veterinary Medical Society. M. Levi's memoir is a very interesting one, and shows plainly that the author is quite proud and enthusiastic about the genuineness and great value of his pet method of administering medicines.

To some parties the administration of medicine per trachea may appear not only dangerous, but absurd; but experience says the reverse, for it seems proved that a great many valuable and powerful therapeutic agents may, with the utmost safety, be injected into the trachea, and so become very quickly absorbed into the system, by means of the mucous membrane of the respiratory passages. In chest or lung diseases, this is no doubt

a great aid towards the successful application of the necessary remedies. You can, in fact, almost apply your remedy directly to the diseased part. A good example of this may be found in the treatment of Phthisis Pulmonalis Verminalis. Here we can inject per trachea Ol. terebinth, Ol. olivæ et camphor, which may come in direct contact with the invading parasites.

For a good many years I have occasionally used Ol. terebinth, or Ol. paraffin, for a like purpose and after a similar fashion; but with this difference, that while Dr. Levi injects the application in between two of the cartilaginous rings forming the trachea, I poured the same in at the nostrils, generally in small quantities, and squeezed from a sponge. In 1874 we had a good deal of Pleuro-pneumonia round about here, and certain parties got into a perfect craze about Ol. paraffin as a preventive of "Pleuro," and a great many cattle at infected centres were most unmercifully dosed with the same per nostrils. I subsequently was called upon to make a *post-mortem* of several of these paraffined cattle in advanced stages of Pleuro. I remember one young calf, which was literally soaked with paraffin—as a preventive—squeezed from a sponge into its nostrils, which calf still succumbed to the disease, the *post-mortem* revealing consolidation in both lungs.

The great drawback in these applications of turpentine or paraffin per nostrils, is their passage through the larynx, the extremely sensitive mucous membrane of which quite abhors contact with any solid or fluid. This untoward cause of irritation is obviated by the injection of the therapeutic agent directly into the trachea, the mucous membrane of which is not so particularly sensitive, but rather the reverse, and is on the other hand endowed with highly absorbent powers; this comparative non-irritability and great power of absorption is continued into the bronchi.

I believe the injection of fluids directly into the trachea, to quite a heroic extent as regards quantity, was long ago practised on the Continent, but with no sort of plan and as little benefit; so that it has been left to Dr. Levi to bring the method into something like a system, and, as I have said, he is quite enthusiastic about its success.

A very small trocar and canula is introduced into the trachea, between two of the cartilaginous rings, the trocar is withdrawn, and the medicament (whatever it may be) is injected very gently through the remaining canula. The hypodermic syringe comes in very conveniently here, as by it we can regulate the dose which we wish to administer. In fact, in a great many cases I don't see any reason why the hypodermic syringe could not be used directly without the intervention of trocar and canula. In so far as I remember, M. Cagny proposes using, in cases where the injections into the trachea have to be often repeated, a miniature tracheotomy tube, which is to remain *in situ* as long as these injections are necessary.

Some of Dr. Levi's propositions and experiences will, I am afraid, require to be received "cum grano salis"—such as the curing of well-marked chronic Glanders in about a week, by repeated tracheal injections of iodine and iodide of potassium; and the eradication of pulmonary gangrene (of even restricted extent) by injections of sulphate of quinine.

Rather more reasonable are the details of his experience in treating cases of Typhoid Fever in the horse, by repeated tracheal injections of quinine; although, even here, the cure often follows rather close on the treatment.

On the whole, however, I am inclined to look with a favourable eye on the generality of Dr. Levi's propositions; and I intend in the next Journal, with the Editor's kind permission, to revert to this subject, and give an analysis of a number of the doctor's formulæ, and also offer a few critical observations on his *therapeutique clinique.*

CASES OF ENDOCARDITIS.

BY RICHARD BURKE, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, INDIA.

I.—*Endocarditis in the Dog.*

THIS form of disease must necessarily be considered as rather formidable; since, if it be neglected, or not early diagnosed, it most commonly ends in death. It most frequently occurs in the

acute form, when the nature of the disease remains undetected until the last moment, when it is too late for medical interference, as life is shortly extinct from the first manifestation of the more active symptoms. The disease also occurs in the subacute form, when sedative remedies ought to be cautiously administered; a proceeding, however, which seldom affords satisfactory results, since the patient is doomed to an early death, resulting not uncommonly from detachments of fibrinous particles from the heart's cavity being carried away, by the force of the circulation, into the smaller arterioles and capillaries of the brain, and there causing softening and degeneration and even cretification, as a case I recently had to examine, when at Allahabad, clearly proved. The history of this animal left no doubt in my mind that Endocarditis in the dog must further be regarded as essentially a hereditary pathological state, oftener traceable to the latter than to any other cause, to judge from this case alone, which occurred in one of a litter of five pups, all of which were said to have died similarly affected before arriving at the age of two years, my patient being a little over three years old at the time of his death.

More recently the same opinion received appreciable justification in the following case, which occurred in a spaniel bitch, three years old, belonging to Lieutenant Grant, of the 10th Lincolnshire Regiment. Mr. Grant described the history and symptoms presented by the animal before her death, in the following words: That there was noticed nought but slight dulness the evening previous in his spaniel, which became suddenly very ill the next day, and showed symptoms of great excitement, with foaming at the mouth, going round and round a circle on her left in a cautious manner, as if in great internal pain, and then suddenly dropping dead before him without a struggle, a few minutes after she first manifested any palpable symptoms of illness. She had only recently given pups, was in excellent condition of body, and had manifested no signs of internal disorder until the time immediately preceding that of her death. The brother to this bitch had died in a similar manner, but under more prolonged conditions of suffering, last year, when only two years old; and a second case occurring in the same batch of

pups aroused the suspicion of some hereditary disease lurking in the system of the two victims to have caused identical results in both—death.

Post-mortem examination showed the following:—General hyperæmia of the endocardium lining both cavities of the left side, with scattered points of extravasation. Inflammatory softening of the mitral valves, and rupture of the tendinous cords. A patch of extravasation under the endocardium in the right auricle of the size of a shilling-piece.

Later on, another case was brought to my notice in a spaniel dog, three years old, suffering from debility brought on by too frequent coition, which he was noticed to have indulged in during the previous week. As he was the property of an officer in the same battery with myself, and being a well-bred dog, we were anxious to do our best for him. I did not at the time suspect Heart Disease. Prescribed some Tinct. ferri-perchlor., and ordered plenty of milk and bread, with Liebig's soup as a nutritive diet. On the following morning, I saw him breathing with great difficulty, with his sternum and chin to the ground. I was about injecting some ammonia, conveniently diluted, up the rectum, when he fell on his side and died almost instantaneously.

Post-mortem examination showed patches of extravasation under the endocardium lining both auricles and the left ventricle; fibrous vegetations on the mitral valves, which were themselves thickened and presenting numerous points of degeneration on their surface, from softening of the inflammatory exudate. Lungs congested; the condition of the vessels normal. The meninges of the cord slightly injected, especially about the lumbar portion. No other lesions of importance were noticed. No "family history" could be made to account for the disease of the heart.

II.—*Endocarditis in the Horse.*

On the 29th of last month, I proceeded to castrate a country-bred horse—one of a batch of horses I have castrated this year—seven years old, with the result that he died before the cord was fairly divided. On making a *post-mortem* examination, I found disease of the heart, hæmorrhage under the endocardium

of the left ventricle, below the valves, which accounted for the sudden death having taken place. The animal was noticed to have struggled a good deal before he was properly secured in the hobbles when down, otherwise he died so calmly that none knew of it until I directed attention to his head on discovering there was no response made to the application of the hot iron on the exposed cord, which was abnormally thick, otherwise free from adhesions. Going to the head of my animal at once showed me that my suspicions were not altogether unfounded, for he was really dead.

It is remarkable to note in this case that the valves and the auricles did not participate in the disease, but were entirely free from it, probably because the morbid condition found to exist was of not long duration, which is unusual to detect until a later stage when more important changes have been developed. The patch of extravasation, which was distinctly under the endocardium, and situated close up to the auriculo-ventricular opening, was found to be no larger than a five-shilling-piece. The heart weighed a little over nine pounds. There was no disease of the vessels or other important organs.

SOLUTION OF BROMIDE OF ARSENIC.

BY J. DOWLING ALLMAN, PHARMACIST, LONDON.

THIS substance, which is not officinal, I introduced to the notice of the veterinary profession some months since, as a tonic and alterative. Arsenic and its preparations have been employed from time immemorial by practitioners in medicine, to affect certain diseases most intimately connected with the process of nutrition; hence the term alterative, simply because, when administered internally, medicines which are classed under this head alter morbid processes. Various opinions have been offered, and speculation has been rife as to the mode and manner in which alteratives affect the body. Their action may be silent and imperceptible, but their therapeutic value is amongst the most accepted of clinical facts; and what we know of the action of these drugs at present is sufficient to justify us in saying that they

modify the processes of the body, and decidedly alter nutrition, by affecting the functions of the blood-making organs, hence the term "purifying the blood."

Now I have abundant proof of the value of this new preparation, solution of bromide of arsenic, as an alterative and tonic, and judging from clinical facts, it is likely to become a favourite remedy in veterinary science, chiefly as an alterative and tonic. The rules which I laid down for the administration of the drug, seem to be correct in their practical effect: *id est*, by giving small and increasing doses all the constitutional and therapeutic action of arsenic is obtained, and the evil consequences of giving large and unscientific doses of so powerful an agent are avoided, such as gastric irritation, loss of appetite, abdominal pain or uneasiness, and other sympathetic mischief. The diseases for which the drug can be employed in veterinary practice can be summed up in very few words; principally among these, it can be placed at the head of the list in the treatment of many cutaneous maladies. To say that it will cure every case of skin disease would be an assertion too rash and meaningless, and of no practical or theoretical value whatever; but that it is a remedy of intrinsic worth in many obstinate cases is a proven fact, and a fact which is verified from clinical observation by some eminent men. The influence of the solution of bromide of arsenic is peculiarly manifested upon the rete and epidermis, and can thus be employed with characteristic effect in those classes of diseases affecting the superficial parts of the skin. The visible action of the preparation may be slow, weeks and months being necessary to produce the desired result. Improvement once obtained, it is advisable to continue the exhibition of it for some weeks after all apparent symptoms have disappeared. The bromide of arsenic can also be used with very conspicuous effect in certain nervous diseases. It is especially in Chorea that it has acquired a very high reputation. Dr. Sawyer, of Birmingham, has published some elaborate clinical reports regarding the value of arsenic in the treatment of Chorea, proving that some of the most intractable cases were amenable to its influence. The solution of bromide of arsenic has been used with considerable success by some eminent veterinarians in many of the nervous diseases peculiar to horses and

dogs. It should prove to be an invaluable medicine for hunters, especially in the change of seasons, acting chiefly as a tonic and alterative, by improving the condition and giving tone to the system. Each fluid ounce of the preparation contains four grains of pure arsenious acid and nine grains of bromine. The dose for horses is one drachm, gradually increased to two ounces, given twice daily with the food, or immediately after a meal. Administered in this manner, it becomes better assimilated with the food in the stomach; consequently its physiological action is more enhanced. The dose for dogs is five minims, gradually increased to twenty minims.

IMPERFORATE ANUS.

BY JOHN ROBERTS, M.R.C.V.S., CHIPPENHAM.

AN instance of "imperforate anus" some time since came under my notice, which I consider peculiarly interesting from the fact that the unfortunate subject—a male pig—lived for no less a period than *six weeks and one day* after birth.

During life the owner had thought the pig was suffering from "Dropsy," and as I happened to be on the premises just when it died, I was casually asked to look at the carcase, with the object of verifying the owner's diagnosis. On examining it I discovered the abnormality mentioned, it not having been suspected previously. There was not even the semblance of an anus, the common integument being continued quite over where it should have been, a slight prominence of the *raphè perinei* at this point being the only noticeable feature. The animal had been feeding from the trough for at least a fortnight prior to death; and it only began to swell when about three weeks old, this gradually increasing until death took place. The animal fed to the last, and had never been observed to strain. There were no inflammatory appearances presented on *post-mortem*, but the bowels—small and large—were immensely voluminous for a pig of such an age and size. Ascites was absent. The coats of the intestines were exceedingly thin, almost transparent, and the contents semi-fluid. The rectum was sacculated. The tissues generally were

very anæmic, the heart being particularly small and pallid. The immediate cause of death was doubtless syncope of this organ, from diaphragmatic pressure.

Cases of anal atresia are by no means rare, but it is seldom that an animal with such a malformation is allowed to live without something being done to remedy the defect; hence the physiological value of the above case, which must be my only excuse for recording it.

CHOREA IN A GOAT.

BY J. A. NUNN, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, LAHORE.

I SEND an account of a singular case of "Chorea" in a goat that lately came under my notice. The subject was a female goat, about four years old, the property of an officer, to whom it was given, when a few days old, by a native as a curiosity. The animal stands in a perfectly natural manner, but on trying to walk, two or three convulsive movements are first made by the hind limbs, and then the hind quarters are thrown up and the legs flexed in the manner shown in the drawing. The animal

walks altogether on its fore legs with surprising facility, I myself having seen it go for more than 300 yards without stopping. During the time it is in motion, the hind limbs move spasmodically but rhythmically with the fore ones, but on stopping are brought to the ground with some considerable force. The animal had a

kid a few weeks old at foot when I saw it, which was perfectly healthy, the dam being a very good milker. I enclose a rough sketch, in which I have endeavoured to depict the appearance of the goat when walking.

[This would appear to be a rather remarkable case of the disease described in Fleming's "Veterinary Obstetrics" as Parturient Eclampsia. It would be interesting to learn if the symptoms disappeared when the kid was weaned.]

EPIZOÖTIC CHOREA IN RETRIEVER PUPS.

BY WILLIAM J. WELSBY, M.R.C.V.S., LIVERPOOL.

As an illustration of the mimic instinct, as a producer of Chorea, I beg to record the following in the VETERINARY JOURNAL:—

A retriever bitch, the property of a gentleman in this neighbourhood, had a litter of eight pups; they all had Distemper about the same time, one with pulmonary complication, which died, and one, a bitch pup, was about the same time affected with St. Vitus' Dance.

As the place in which they were housed was rather small, I had four of them removed to another compartment; thus leaving three pups with the one suffering from Chorea.

I visited my patient two days afterwards, and found the three pups, with the one mentioned, all suffering from Chorea. I then had them further separated, leaving one pup with the one first affected, and placing the other two each separate. At the end of a week the pair were both dead, and soon afterwards the severally separated two recovered.

The treatment pursued was that which I have before found very successful, and consisted in the administration of ℞. Quin. disulph.; Pulv. ferri. sulph., aa gr. i.; Pulv. potas. bromid., grs. v.; Ext. gentian., 9 s.; ♏. ft. pil. i.; Cujus. cap. i., ter. in die.

In conclusion, I may state they were all bitch pups affected, and that on *post-mortem* examination of the two fatal cases there was no appreciable lesion of the brain or spinal cord.

PURPURA HÆMORRHAGICA AND TETANUS.

BY JOHN J. DOYLE, M.R.C.V.S., ENNISCORTHY, IRELAND.

As the results attending the treatment of Purpura Hæmorrhagica are not, as a rule, satisfactory, it may not be uninteresting should I trespass on the columns of your estimable Journal in recording the history of the last case of that terrible affection which came under my notice. On the 4th October last I was requested to go see, in all haste, a fine mare, the property of a respectable farmer, about five miles distant from Enniscorthy. Though up to eleven or twelve years old, the animal was much prized as an excellent brood mare. She was also of a very free and kind nature, of which advantage was oftentimes taken, as the owner admitted to having frequently overworked her, when under pressure of very high feeding. On my arrival I found the animal manifesting all the symptoms of violent intestinal pain, the bowels were costive, pulse quick and full, mucous membranes injected, temperature and respiration in abeyance. There was also a profuse flow of saliva from the mouth, and unusual nervous perturbation.

I treated as follows:—Tinct. opii, ʒiss; Spt. æth. nit., ʒiss; camph., ʒj; chloral, ʒiij; Ol. lini., oj; the same, with the exception of the linseed oil, to be repeated in the course of two hours, if the pain were not relieved. No relief was, however, afforded, and as the constipation still continued, I prescribed aloes in solution, ʒj; Opium pulv., ʒj; Tinct. aconit. (F) m. xii. This was given about nine hours after the administration of the first dose. Shortly after the pain subsided, but the bowels still remained obstinate. I then gave calomel and opium pulv., of each ʒij, alternated with ʒij each of carbonate of ammonia, chlorate of potash, and cinchona. I had also recourse to enemas, and in the course of about forty-two hours the bowels responded. For the twelve hours following the animal seemed to be steadily improving, when suddenly swellings made their appearance in the hind limbs and head, which rapidly increased, especially those in the hind limbs. These changes were soon followed by the exudation of bloody serum from the skin, which

left no doubts regarding the nature of the unenviable complication which now presented itself.

Treatment:—When Purpura became established, the treatment chiefly consisted, for the first three days, in the administering of tolerably large and frequently repeated doses of ergot and perchloride of iron, alternated with turpentine and nitric ether. No appreciable effects followed; on the contrary my patient was sinking. The animal was growing much weaker; lassitude and emaciation were extreme, the swellings commenced in the body; extensive sloughing began in the hind limbs, and the breathing was performed with such difficulty as to almost necessitate tracheotomy. I now gave ergot in conjunction with iodide of iron and cinchona, alternated with carbonate of ammonia and chlorate of potash; and to the hind limbs, externally, I applied a pretty strong solution of chloride of zinc, with a little tincture of arnica. A plentiful supply of milk, eggs, ale, and brandy, were the agents used to support the system. On my next visit, which was on the 13th, I was agreeably surprised to find that the condition of my patient exceeded my most sanguine expectations. The swellings had almost disappeared from the hind limbs and body, breathing was performed with ease, and the animal had assumed a lively appearance. She also evinced a desire for food, which was, according to my directions, sparingly given; and everything bid fair towards recovery. During the convalescent stages I gave internally sulphate of iron, arsenic, cantharides, and nux vomica in average doses, and instead of the chloride of zinc lotion externally, I applied to the sloughing surfaces a liniment composed of creosote, tincture of arnica, turpentine, and linseed oil, which seemed to have a very good effect. For the next ten days or a fortnight the animal throve apace, and made a complete recovery. Not long since I saw the mare in excellent health, and the owner then informed me that for the last six years she had not been in such condition and spirit, nor better able to perform her work.

I shall now, with your permission, narrate briefly the results of three cases of Idiopathic Tetanus, which I recently treated. Excepting that the jaws were not *completely* locked, the symp-

toms in each case were those presented in an aggravated form of the disease. The treatment I adopted was a teaspoonful of the nitrate of amyl every eight hours on a half pint of gruel, which had, in those particular cases, a magical effect in counteracting the muscular contraction. When nervous excitement was great I gave chloral and camphor, and directed that the animal should have perfect quiet. After the lapse of eight or ten days, each of my patients could partake of a mash tolerably freely. When improvement became still more pronounced, I alternated the nitrate of amyl with hydrocyanic acid, which was given in conjunction with tincture of nux vomica. Under this course of treatment the three animals recovered.

INVESTIGATIONS AND OBSERVATIONS ON ANTHRAX AND OTHER DISEASES, MADE IN MARCH AND APRIL, 1883, IN THE DISTRICT OF SIALKOTE, PUNJAB, INDIA.

BY OFFICIATING INSPECTING VETERINARY SURGEON (2ND CIRCLE, BENGAL) RICHARD POYSER, F.R.C.V.S., A.V.D.

THE following report, I trust, will be considered of sufficient importance to publish *in extenso*, though slightly revised from the original :—

Sialkote, *7th April*, 1883.

SIR,—I have the honour to report the completion of a veterinary inspection of those villages within a radius of from seven to nine and a half miles of Sialkote, from which grass is likely to be brought into cantonments, with the view of ascertaining whether Anthrax did or did not exist, and beg to submit the results of my investigations thereon, amplified by observations relative to Anthrax and other diseases which carry off thousands of animals annually in this and other districts.

This investigation originated in an extract from the Principal Veterinary Surgeons' (in India) report made at the conclusion of his annual inspection in January last, who was of opinion that "much valuable information as to the existence of Anthrax amongst cattle in the surrounding villages might be obtained,

. . . and prove of the greatest importance in obviating possible contagion by enabling the taking of measures to prevent grass-cutters bringing grass from the infected neighbourhood." I was therefore deputed to make the investigation, the military and civil authorities promising energetic co-operation.

The course pursued was to personally visit the villages, and with the joint assistance of Tehsildar, Deputy Inspector of Police, zaildars, lumbadars, putwarries, and zemindars, to inquire into the exact number and condition of all animals belonging to each village; to ascertain the diseases from which they had suffered and died since the 1st April, 1882, up to date; to define, if possible, the exact nature of the diseases described, when most prevalent, how originated or acquired, how long in operation; what was known, or done, in the way of treatment or to bring about suppression, and to prevent extension; how the carcases and hides were disposed of; to ascertain whether diseases of any kind then existed; to inspect the healthy first, so far as was practicable, and then the affected; to advise curative and preventive measures; to make *post-mortem* examinations of all fresh carcases; and to afford instruction on any subject that suggested itself at the moment, especially as to the disposal of animals dying from Anthrax, Rinderpest, and Foot-and-mouth Disease.

A special point was to inquire whether grass-cutters visited each village and its neighbourhood, and at what seasons; and to look about the country traversed, to note and examine those parts which grass-cutters were seen to frequent.

As to the quality of the information elicited, it is approximately accurate. Natives are highly suspicious of such inquiries, and evade the truth, though quite ignorant as to why they should adopt this course.

It is probable that the numbers were under, rather than over-rated, where no means of checking existed, as in the case of deaths; even with regard to the numbers of animals present it was so, a circumstance suspected, and detected by herding and counting.

Towards the close of my inspection, the lumbadars had acquired the habit of stating that carcases and hides were buried, though dozens of dried skeletons were to be seen on the

outskirts of villages, and in the deep nullahs intersecting the country, and it is well known that the hides are always removed and generally sold.

The totals of each class of animal owned by the villages inspected, and the numbers of deaths in each class, are massed from details which are not necessary for this report. *Vide* Abstract A. The different diseases, and the months in which deaths occurred, are enumerated in Abstract B.

Anthrax has, within the last year, visited upwards of one-third of the villages inspected, and it is not improbable that a like average obtains throughout the district. I should say the mortality for the past year was decidedly low.

Though I did not see a single case of Anthrax, I conclude that the whole area has been, and is, infected ; for, according to the most advanced knowledge on the subject, one, two, or three years' freedom from the disease does not destroy its power of evolution and development where it has once existed. The germs of Anthrax infection may lie dormant in the earth, or in its produce (so Pasteur says, but no one has demonstrated this in India yet), for an indefinite period, and spring into activity when incepted on the infected spot itself, or when conveyed from it in the herbage and earth by grass-cutters to animals at a distance ; and this is, perhaps, the way in which to account for the periodical appearance of Anthrax amongst the horses in the Sialkote cantonment, in an enzoötic or a sporadic form. I have, however, no local data to prove these statements to be indisputable.

The Principal Veterinary Surgeon's suggestion, that infected villages should be avoided by the cutters and carriers-in of troop horses' grass forage, was wisely made, and in the belief that the special cause was brought in with herbage and soil which had been infected by Anthrax virus ; but, whilst I have no reasons for not concurring in this belief, I must regard it as impracticable to trace and demonstrate the connective influence in operation between the Anthrax of the village cattle and that of the Sialkote troop or private horses, without direct experiment.

We cannot hope to meet with an accidental proof that Pasteur's discovery is correct in this instance, though useful

evidence might be counted on by prohibiting all grass supply from the villages and their surroundings, and enforcing the constant use of forage grown only on selected (and of course uninfected, if such could possibly be guaranteed) sites.

Arrangements have been commenced to put Pasteur's experimental deductions to the test, by feeding a horse and a pony upon a green cereal (and grass) crop plucked up fresh from the surfaces of graves containing a number of anthracoid carcases. The wheat and barley crop is here exceedingly strong and healthy; five interments took place in May, 1881, and a large number of others at various periods before and since, about the same site. The two trial subjects are picketed on the sunken surfaces of two other graves, some distance from the crop, containing two horses which had died from Anthrax in April, 1882. The result of this experiment will be afterwards reported.

We have little or no control over the movements of the men who supply our troop horses with grass: they go no farther out than is necessary to obtain the amount required. During the rainy season when grass is abundant everywhere, they visit, almost without exception, every village within the range of my inspection, and very many more.

In the cold, and very hot, dry season, when the grass is scarce, but few of the grass-cutters visit the villages and fields, though I have seen them "cheeling" (shaving below the soil's surface) grass in the filthiest of deserted enclosures on the village skirts, and from the verdant patches further away, where growth had been encouraged by the fluids and ingesta of diseased cattle which had died, or been dragged there after death, to be eaten by carrion animals.

The regimental double grass-cutters* generally proceed in bodies, at these seasons of scarcity, to the banks of the Chenab, north-easterly through Chuprah, or north-westerly through Kooloowall, or through Kotli-Loharun to the marshy lands beyond.

Single grass-cutters, such as are generally employed by private

* A double grass-cutter is a man with a pony, which carries in the quantity he cuts for two horses. A single grass-cutter is the man who carries in the quantity he cuts for one horse.

individuals, "cheel" about everywhere, on the edge of nullahs, between fields, on village roads, on the margins of stagnant pools; a green blade from any spot is acceptable to them; and I have actually seen men removing grass by its roots for transplanting, and "cheeling" for forage, on the very edges of Anthrax graves.

It is, however, the exception to see Anthrax in horses belonging to private owners, yet two fatal cases occurred here in officers' ponies about the time of the last epizoötic, and two grass-cutters' ponies and a police officer's horse succumbed to it as sporadic cases.

Whenever Anthrax has occurred in troop or private horses at Sialkote or elsewhere, I have never been able to trace its origin, define its mode of access, to say why one horse is infected here and another twenty yards off in the same line, and perhaps a third in another troop; or to discover why it suddenly or otherwise ceases. But it invariably happens that one troop only out of the six is infected, a fact tending to show that the cause has a sort of troop origin, though this could never be demonstrated. Supposing this particular troop's grass-cutters brought in the infection, I could get no clue as to the time of its introduction, nor as to the precise place whence it was obtained.

Beyond being cognisant of the facts that Anthrax poison had been incepted, and that the result would be fatal, the rest has always been shrouded in hypothesis, so far as my experience in India is concerned. *Vide* Sir M. Biddulph's remarks.

These grave confessions inform us that the cause must be practically recognised and manipulated . . . . before we can hope to intercept its influence.

As regards the recurrence of outbreaks of Anthrax, I am of opinion that the poison is incepted simultaneously by those affected or nearly so, that is, in batches, but there have been many instances where this could not possibly have been.

Treatment is as yet empirical, and in the main, valueless. The means adopted to control or prevent extension, do, it is true, turn out successful in the long run, but are, like the treatment, empirical; excepting that they are not at variance with the *general* laws of sanitation, there is no actually recognised

relation between the cause and its nature, with the particular measures employed to avert inception between one outbreak and another.

Isolation of the diseased, segregation of the healthy, and similar simple sanitary precautions, are the chief agents at our command, yet without their influence outbreaks have ceased. But it is imprudent not to adopt measures which experience pronounces to be of some value, and easily and economically attained. This is mentioned, because objections exist in known quarters, against clearing out of infected lines on the outbreak of Anthrax.

Whatever may have been the origin of Anthrax in Sialkote, it is quite certain (supposing M. Pasteur's theory concerning the germs of Anthrax, their development, etc., be correct) that for very many years past—indeed, until I instituted cremation (at my own expense at first) in September and October, 1882, Anthrax has been steadily cultivated and propagated in and about the cantonments by the burial system of disposing of anthracoid carcases (equine).

It is quite impossible to say what parts are not in this way infected. Since my residence here a large number of Anthrax carcases have been buried in and about some old brick mounds, midway between the north road and the village of Bhurruth, abutting on the cavalry parade ground, and not far from the 6th Dragoon Guards infirmary and lines. Over these graves a heavy cereal crop is growing. After harvesting, these places will be grazed over by cattle from Bhurruth and the adjoining villages of Churani and Bhoth, from which my notes furnish the following :—

No.	Animals.	Month.	Disease.	Villages.
6	Oxen.....	January	Anthrax	Bhurruth
6	Oxen.....	February ...		"
1	Cow	January		Chukrani
1	Ox.....	February ...		"
1	Buffalo (female)	March.....		Bhoth
4	Cows.....	September...	Rinderpest	Bhurruth
4	Buffalo (male).....	September...		"
1	Cow	January		Bhoth

(*To be continued.*)

PARTURIENT APOPLEXY IN CATTLE, COMMONLY KNOWN AS "MILK FEVER."

BY J. H. COX, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, 5TH DRAGOON GUARDS.

(*Continued from page* 21.)

In the selection of stimulants, some prefer one class, as brandy, whisky, etc., whilst others have a weakness for Spt. Æth. Nit., Spt. Ammon. Co., etc. It matters not, in my opinion, which is given, so long as the action is kept up; but I should always recommend the addition of Spt. Ammon. Co., as it tends to correct any tympany arising from the evolution of gas in the stomach, besides being antagonistic to the formation of fibroid deposits. The danger in administering all remedies, owing to the power of deglutition being in abeyance, should, if necessary, be met by the use of the stomach-pump.

The position of the animal demands constant attention: in every case it must be placed on the "belly." This attitude is retained by bundles of straw or sacks filled with hay, and so adjusted as to prevent the patient drifting on to its side. The head must be bolstered up and kept somewhat extended, care being taken that nothing interferes with respiration. The recuperative power of pure air being essential, provision should be made for a proper supply. Every six or eight hours the posture should be changed, always remembering that the *near or milking side is the most comfortable.* The bladder should at intervals be relieved of its contents, the secretion of milk encouraged by stripping the udder.

Crushed ice to the back of the head or poll is a useful adjunct to treatment. If not procurable, cold irrigation or cloths immersed in cold water should form a substitute.

The attack varies in its duration from twelve to forty-eight hours, or even longer. When it extends over the latter time it becomes more serious in its nature, as the lesions which have occurred are difficult to repair. *Pneumonic complications* are to be dreaded: the relief afforded by the vagaries of the thrombi is to be viewed with suspicion. The symptoms certainly seem for a time to lose the gravity which characterized them at the onset,

but they are none the less dangerous. This *Pulmonary* Apoplexy must be met by diffusible stimulants of a nature calculated, by acting as fibrin solvents, to relieve blood pressure, the most useful being Liq. Ammon. Acetat. et Ammon. Carb. At this stage it will be necessary to abandon the "general" for the "chest pack," which is applied as follows: Two pieces of spongiopiline of sufficient dimensions to cover the external aspect of the lungs should be immersed in hot water. Having wrung out the superfluous fluid by means of a covering dry cloth applied with rotatory pressure, sprinkle on some Ol. Tereb., and apply immediately to the walls of the chest. Two small connecting straps across the withers will hold it in position. To manipulate this pack properly requires that the operators (at least two) should be somewhat expert. The points to observe are the obtainment of a large amount of heat with just the required amount of moisture. If too wet, the water will gravitate and form a pool under or about the patient. This, I need scarcely add, renders the animal uncomfortable, and militates against the success of the treatment. Once fixed, the spongio-piline must be covered immediately by ordinary rugs, etc. Its renewal should take place about every four hours, the Ol. Tereb. to be discontinued after the second application. We may at this juncture call upon the bowels and kidneys to exercise their influence in assisting nature to combat this new feature. The sympathy existent between all mucous membranes will not admit of a drastic purgative being given, but no harm will result from an occasional dose of Ol. Lini.; whilst frequent doses of Potass. nit. will operate upon the kidneys, and so, in a manner, form a counterpoise to what is going on in the lungs.

If the pulmonary congestion is not soon relieved, it runs on to what is designated *Secondary Pneumonia.* Under ordinary circumstances this complication is difficult to overcome, but more so when it is the sequel to Parturient Apoplexy. Should the respiration be very distressed and the accompanying symptoms of an urgent nature, relief will often be obtained by the subcutaneous injection of atropine 25M every twenty-four hours. More, however, will depend upon good nursing to enable the animal to throw off the disease.

Another sequel is that of *Motor Paralysis* of the hind extremities, lasting from three days to a month or longer. Various devices have been employed to overcome this, as electricity, blisters along the course of the spine, pitch charges, fresh sheep-skins, and, lastly, the cowleech's old remedy for "worm in the tail." In every case time must be allowed for the repair of tissue. If the result of passive congestion of the vessels in connection with the motor portion of the spinal nerves, it is not difficult to eradicate; but if it is the outcome of serous effusion or hæmorrhage success is not so certain. The latter condition is fortunately seldom witnessed. As a rule, the circulation gradually resumes its normal condition, and little by little strength is gained, until at length the patient is enabled to use its legs. This may be hastened by the application of strong ammoniacal liniment, or mustard embrocations, or even blisters along the vertebral column. Some practitioners give Nux vomica or its alkaloid strychnia, but I do not see much benefit to be derived from them, as the disease is not neuropathic in its origin. Electricity is useful by indirectly increasing the circulation. More can be done by husbanding the strength through good nursing, attention to hygiene, keeping the organs of the body in proper working order.

Although "slings" are not to be advocated in the treatment of ruminantia, on account of the ponderous nature of their stomachs, they may be used in these cases for the specified object of enabling the patient to regain its legs. Animals—especially the bovine species—after being recumbent some time, seem to lose heart and will not make an effort to rouse themselves. Slings in a case like this are useful, if only to fix the animal in a standing position, and imbue it with that will which it is only necessary to exercise to succeed. A few rehearsals of this nature will restore vigour to the hind quarters. I have in one or two instances, where the paralysis was somewhat protracted, seen very good results accrue from this practice. With the old-fashioned slings this process was not easily accomplished, but with the new ones invented by Messrs. Arnold and Sons, it should be simplicity itself.

The yelpings of a dog will often excite the patient to such a

degree that the muscles of the loins and quarters are brought into play, and the animal almost unconsciously raises itself. A conflagration in close proximity has also been known to have the same effect. The stentorian sounds emanating from the throat of the burly cowman will, when emitted adjacent to the ear of the patient, sometimes produce signal results in this particular. These adjuncts are useful only where it is palpably demonstrated that "resignation to the inevitable" has taken the place of disease.

Post-mortem appearances.

These do not always afford that information the violence of the symptoms during life would lead us to expect. They oftener require the practised eye of those versed in morbid anatomy to unravel their mysterious significations. The autoptical lesions from one class of observers claim but passing notice, whilst with others they possess typical representations of the most aggravated forms of disease. The pathologist in pursuance of his investigations finds metamorphoses sufficiently developed to account for the phenomena during life. Foremost come those connected with the cerebro-spinal system. Here we have proof that the train of symptoms, analogous almost in every case, derive their seat of ingestion from these centres. The capillaries and sinuses are engorged with blood, and the pressure exercised by this means initiates that paralysis which is often destined to become the dissolution of the patient. In some cases small blood spots are observed on the surface and integral portions of these moto-sensory organs. These spots are due to the escape of fluid from the vessels, either by direct rupture of, or exudation through, their walls. When serous effusion is recognised, it is attributable to attempts on the part of the vessels to relieve themselves by getting rid of the watery portions of the blood.

In turning our attention to the organ of reproduction, we find that involution of the uterus is incomplete. It cannot be expected that the recoiling upon itself should be accomplished with momentary rapidity, but upon its being quickly performed constitutes immunity from attack. In some instances there is an evident want of tone in its walls, which brings into greater prominence the uterine vessels.

Following out the sequel of blood pressure, we occasionally find small blood-prints on the endocardium.

The lungs will be comparatively free from disease should death occur before pulmonary complications arise. At the same time, the ramifications of the vessels will always exhibit a congestive tendency. Speaking generally, the blood will be found darker in colour, owing to its respiratory or oxygenating function not having been properly fulfilled. Should the patient have sufficient vitality to pass the comatose stage, but still in the long run succumb, the pulmonary registrations will then be more conclusive. The evidences in these cases apply more to the forms of Pneumonia. As this is somewhat foreign to our subject, except as a passing allusion, I shall not trouble my readers with details.

Prophylactic measures.

I have long held the opinion that Parturient Apoplexy ought to be of the rarest occurrence. Were we dealing with some subtle influence similar to that at work in contagious diseases, our efforts to check its progress might prove futile; but we have not this contingency to face. The factors in production do not go stalking abroad seeking for fit subjects on which they can fasten their evil propensities, but are confined to the limited area of the farmyard. The present high state of domesticity to which our cattle are subjected has no definite line of demarcation. Such being the case, we have to deal with a condition of things which, although living emblems of manipulative dexterity, are equally antagonistic to health. Stock exhibitions engender a feeling of rivalry amongst the many claimants for honours in this particular; but the good which emanates from this striving for superiority is mingled with a certain amount of danger. This high pressure, when persistently applied to any organisation, be it living or not, must pay its penalty; and in stock-breeding we have no lack of material on which operators can exercise their ingenuity. It is refreshing to witness that, in some quarters, a reaction is taking place in this respect, and that men can be found possessing sufficient courage to decry this forced system of raising stock. The colossal representations of hypertrophied adipose tissue, as witnessed at our stock exhibitions, speak

volumes for the skill brought to bear in production ; but whether this development, which some call morbid, will ultimately be beneficial is a question open to serious doubt. We cannot deny that some of our cattle are in a chronic state of disease from being over-fed ; and it is just possible, as like begets like, that the conditions thus generated are transmitted from sire or dam to progeny.

If it be true that hereditary taint enters the list of predisponents, it is our duty to guard against the introduction of a breed which possesses this unwelcome feature. This, I take it, forms the first link in the chain of preventive remedies.

Where any predisposition is evidenced the greatest care should be manifested in the treatment generally. Holding premier place comes that of feeding. From the time the cow "runs dry" the diet should be plentiful, but sparingly nutritious. No greater error can be committed than cramming pregnant animals with highly nitrogenous and carbonaceous food. It is not found, as a rule, that the offspring is any the better for it ; on the contrary, it is often puny in its dimensions. The time to give nutritious food is when recovery from parturition has become finally established, and when the drain on the system consequent on the supply of milk is being felt. I do not advocate the extreme of "starving," which I have occasionally seen adopted. A uniformity in feeding should be inaugurated when the cow ceases to yield milk, and adhered to without deviation until the period of danger is passed ; under these circumstances plethora will seldom find birth. It is noticeable that some animals become affected even when lean in appearance, and although dietetic arrangements have been observed with scrupulous precision. In cases of this nature we must cast about for other causes. These, it may be, do not always appear on the surface, but are buried in obscurity, which only the most observant of men can discover. Occasionally they are so occult that no assignable reasons can be formulated. We can then only ask ourselves whether the laws of nature have been faithfully obeyed ; whether the animal has been subjected to any of the many forms of external violence calculated to bring about systemic disturbance, or whether disease, especially that resulting in organic

change had pre-existence. The due observance of any one of these conditions should enter the list of prophylactic measures.

I know of no better preventive of Parturient Apoplexy than that which results from a judicious amount of exercise. Just for a moment let us consider the artificial state to which our bovine tribe is reduced in this respect. In summer-time Nature's precepts are adhered to, and the cow is allowed to roam about in search of food, and the very fact of having to do this tends to keep it in a state of health and condition. During the winter season, unless it happens to be exceptionally mild, countless herds are tied up by the neck, and are allowed that amount of exercise which a walk to and from the watering-trough affords. In no other tribe is the same arbitrary rule exacted. The mare is granted its freedom, and in many instances performs its usual duties to within a short time of foaling. In sheep, dogs, and pigs the same argument applies, with exception of the latter, but even the pig has a certain amount of ground area on which it can disport itself. The cow stands alone as the recipient of this unnatural treatment. In the higher order of mechanism—the human subject—exercise is often enforced in order to avert the dangers so closely connected with this period of life. A sedentary existence in all animals unfits them to do battle with disease, and at no time is it of such paramount importance as during the latter stages of utero-gestation. It will be remembered that the muscular tissue plays a prominent part in this process ; its proper development, and being able by its tonicity to exercise the functions ascribed to it, renders the act of labour much easier than it would otherwise be. The fœtus is expelled with greater freedom and rapidity, and the pre-conception state, including the contraction of the uterus, is more readily resumed. Exercise has other advantages: by exciting the organs of the body to the performance of their functions we promote the elimination of waste products, and by thus improving the condition of the blood, and hence the health of the animal, we reduce the susceptibility to disease.

Judicious feeding and exercise will then in many instances ward off an attack of this disease. If these have been neglected, or in spite of their observance, danger is still apprehended, it

behoves us to adopt other remedies. I remember the time when blood-letting was commonly had recourse to as a preventive measure. There are practitioners at the present time who ignore the ideas advanced by the new school of veterinarians, and still pursue this course as a prophylactic. I think, however, we have arrived at a time when the blood-stick and phleme can be dispensed with. If venesection is indicated, consideration must be had for the fœtus in embryo, or the shock generated might have a pernicious influence on its well-being.

The old adage, "a stitch in time," is often exemplified by the timely administration of a few well-chosen but simple remedies; and no better can be found than those known to most stock-keepers, as follows:—Magnesium sulphate, 1 lb.; Ginger pulv., 1 lb.; Gentian pulv., 1 lb. This "drink" should be given three weeks before calving, and repeated every seven days until this period is passed. Potass nitrate, ʒi. occasionally in a pint of water is also useful. In Ammonia carb. we possess an agent as a prophylactic; a few doses of two drams each will exercise its antagonism to the undue formation of fibrin, and so lessen the tendency to thrombi.

The secretion of milk should be encouraged by *shampooing* the udder, and occasionally withdrawing its contents. We now approach the critical time, *i.e.*, after the birth of the calf. At this juncture we must act with the greatest promptitude or the disease may steal a march upon us. The saline aperient should be repeated, and with it the pulvis ergotæ recommended by Mr. B. The womb should be cleansed with the solution before suggested, and repeated every six hours. If the act of calving be protracted, and the patient evinces symptoms of distress, a diffusible stimulant as Spt. æth. nit. or brandy will help to restore vigour to the system. The diet should be succulent, as gruel, bran mashes, etc., but in sufficient quantities only to satisfy the cravings of the stomach. If a repetition of the aperient *cum pulvis ergotæ* be deemed expedient, no time should be lost in having recourse to it. The action of the skin, especially in inclement weather, should be encouraged by the addition of rugs to the body, and friction followed by hay or woollen bandages to the extremities. Due regard should be paid to ventilation, cleanliness, etc.

Unfortunately, stock-keepers are, as a rule, blind to their own interest, inasmuch as it applies to this particular subject. They are often quite content to leave matters to mere chance; and if what is termed "luck" happens to smile upon them, there is a self-contentment which pourtrays the feelings of the inner man. But if Fortune's wand is not thus spread over their domain, they ascribe the ill turn of the tide to anything but the right cause. Parturient Apoplexy forms one disease amongst many others which may, in a great measure, be prevented.

The Flesh of Animals so affected, in its Relation to Human Food.—Although an important branch of our subject, it may be despatched in a few brief remarks. When the flesh of an animal thus affected becomes unfit for consumption, it is often rendered so by human agency. If the disease is allowed to run its course unmolested, it, unless it be of a protracted nature, develops nothing antagonistic to the health of human beings. We are not dealing with an affection having for its propagation septic properties, but with one which emanates from the ordinary conditions of life. Sanitary statutes, however, provide a limit by which flesh of this kind shall form food for the community. Beyond this point it becomes penal, both by natural laws and those enacted by the legislature, to dispose of such meat. If the animal succumbs to the disease or be slaughtered before structural change takes place, the flesh is perfectly wholesome. But if, on the other hand, disorganization of tissue is set up, or if by the wholesale administration of remedies we impregnate the system with their noxious properties, it is no longer fit as a food commodity. These facts are fully understood by some owners of stock, and should the patient be in marketable condition they prefer immediate slaughter to the risk run in treatment.

There is another sequel to parturition which is generated by septic influence and is known as *Puerperal Fever*, but except that both this disease and Parturient Apoplexy have the same exciting cause *in initio* for their production, there is nothing in common between them. The distinguishing features are so marked, that ignorance cannot be advanced as a plea for the disposal of meat so contaminated. The flesh of an animal suf-

fering from Puerperal Fever is dangerous to a degree, and should never be allowed to find its way into the market.

In bringing these remarks to a close, I must apologise for their length. As an excuse, I can only advance the importance of the subject under consideration.

The question may suggest itself, What percentage of cases recover under this treatment? To this I cannot give a definite answer, as statistics were not kept; but I may state that fatal cases were certainly the exception.

THE INFLUENCE OF HEREDITY AND CONTAGION ON THE PROPAGATION OF TUBERCULOSIS.

(*Continued from page* 406, *vol. xvii.*)

Absolutely the same ideas have prevailed, relative to the causes of Contagious Pleuro-pneumonia, at the time when its contagiousness was still a matter for doubt. The marked hygroscopic condition of low-lying countries; damp pastures; bad food; unhealthy stables; over-crowding; feeding on the refuse of breweries, distilleries, and sugar-factories; too rapid fattening; and excessive lactation—all these were looked upon as the essential causes of this malady up to nearly the time when it was at last recognised that its greater frequency in low-lying damp countries, in dairies, distilleries, breweries, and sugar-works, than in elevated countries and breeding farms, is due to the fact that in the first-mentioned regions and habitations the bovine population is being continually renewed, and that the opportunities for the introduction of infected or diseased animals are consequently much more frequent than in stock-raising countries.

The number of cattle attacked with Tuberculosis is considerable, even if we take into account only those sent to the abattoirs—those places where animals are only valuable for the materials their carcases yield. It is otherwise, however, with the cattle employed in labour, and those for production and reproduction which are traded in. Numerous tuberculous animals are sent to the ordinary fairs and markets, where they come in

contact with healthy cattle. To prove this latter fact, we shall find materials in the statistics of actions-at-law, in the matter of Tuberculosis, recorded during the years 1867 to 1882 as having been entered upon in the Grand Duchy of Baden. The following are the figures :—

Year.	Total of Civil Actions on account of Unsoundness.	Total of Civil Actions on account of Tuberculosis.	In 100 Civil Actions, there were on account of Tuberculosis,
1867	337	237	70·3
1868	348	247	71·0
1869	442	305	69·0
1870	279	169	67·0
1871	418	293	69·0
1872	710	512	79·7
1873	646	511	79·1
1874	486	368	75·7
1875	342	253	79·3
1876	330	219	66·0
1877	505	395	78·0
1878	655	478	72·9
1879	470	316	67·2
1880	238	155	69·0
1881	214	112	59·3
1882	309	140	45·3

Although up to 1879 fifty-five per cent. of the cases of unsoundness had not been established through the intervention of veterinary surgeons, and that since then it has been the same for forty-five per cent. of the cases mentioned, the figures given already prove that a good number of the cattle dealt in and carried about are affected with this disease ; and the number must be very much greater when we reflect that all the phthisical cattle do not become the cause of a law-suit.

It is not only in cattle that we meet with this malady ; it also attacks other creatures, and of these we place the *pig* in the first line. In this animal we find the lesions of Tuberculosis in or on the serous membranes, as well as in the pulmonary parenchyma (Pulmonary Phthisis), where it assumes the form of small nodosities or caseous infiltration. The lesions of the affection may also, in the pig, become localized in the mucous membrane of the small intestine, as a caseous degeneration ; but they are more frequently met with, in this animal, in the lymphatic glands, where they give rise to the formation of soft or caseous centres, of the consistency of mortar, disseminated or deposited

in mass in the tissue. When the malady is more especially localized in the lymphatic glands, it is then known as Scrofula. To judge from what has been stated by the best observers, it is more particularly highly-bred animals—those with fine and abundant connective tissue and small bones—which are attacked with Tuberculosis in the latter form; while the ordinary unimproved breeds are much seldomer affected.

Spinola, Albrecht, Roloff, Schütz, and Semmer have studied this affection in North Germany and Livonia; Bollinger has observed it in Switzerland, Trasbot at Alfort, Mandel in Alsace, and the majority of Badenois veterinary surgeons in the Grand Duchy of Baden. Leisering has noted the presence of the disease in a wild boar in the Zoological Gardens of Dresden; and Göring reports that, in an establishment where there were many tuberculous fowls, he found a score of pigs affected with Scrofula or Pulmonary Phthisis.

In the Grand Duchy of Baden there were killed, during the period between 1874 and 1882, a yearly average of 7,800 pigs, and of these twenty-two were affected with Tuberculosis—a percentage of about 0·2 of all the pigs slaughtered. It must not, however, be concluded from these figures that this disease is very rare among pigs in the Grand Duchy; for in order to be fit for the butcher the pigs ought to be fat, and the number of those which are capable of being fattened when attacked by Tuberculosis is inconsiderable. Those which cannot be fattened are slaughtered clandestinely or sacrificed *in extremis*, and their flesh is generally employed in the manufacture of sausages.

In the report on the sanitary condition of the domesticated animals in Saxony during the year 1881, Baumgärtel describes a typical case of Pulmonary Phthisis observed in a pig. The lungs, as well as the spleen and liver, were full of tubercular nodules, as were also the lymphatic glands. On the costal pleura there were nodules as large as a pea, of the same character as those met with in bovine Tuberculosis. A somewhat numerous list of similar cases may be made from the writings of different veterinary surgeons.

The existence of this disease in the *sheep* is not yet well

established. The description of ovine Tuberculosis in the writings of Hurtrel d'Arboval* does not allow us to decide whether he really had to do with this malady, Distomatosis, or some other chronic affection. The publications of Dupuy, Baron, Delafond, and Lafosse, on Pulmonary Phthisis in the sheep, leave us in doubt as to the nature of the affection alluded to, as well as to the character of the pulmonary nodules, nodosities, and other lesions observed in the course of the disease. According to the researches of Villemin, Röll, and Damman, sheep are refractory to tubercular inoculation; while Colin and Zürn pretend that, although the majority of their inoculations were without result, they nevertheless sometimes succeeded in communicating the disease to these animals.

Carsten Harms relates the occurrence of Tuberculosis in a *goat.* In making the autopsy of this animal, he found nodules and vomicæ in the pulmonary parenchyma, the former being of the size of a grain of millet to that of a pea. On the surface of some sections the nodules were grey in colour, moist and shining; while others were dull and had a yellow tint. With regard to the caverns, their dimensions varied from that of a hazel nut to a fowl's egg; their walls were irregular, but smooth on the surface, and a certain number had cords or bands across them. The smallest were completely closed, and contained a grey grumous mass; the largest communicated with the bronchi, and likewise contained a greyish-brown coloured mass, but which was mixed with air.†

We (Lydtin) have met this Phthisis in three goats at Baden-Baden. These animals belonged to a large flock, and were housed with cattle belonging to the same owner. The cattle were often renewed, and here and there amongst them cases of Tuberculosis occurred. The diseased goats gradually became emaciated, and they coughed; the visible mucous membranes and places destitute of hair became pallid; the secretion of milk diminished to such an extent that it was not worth drawing. After death, in all three goats the lesions were confined to the chest. The pulmonary interlobular connective tissue was in-

* Dictionnaire de Méd. Vétérinaire, vol. v., p. 49, Paris, 1839.
† Badische Thierarzt Mittheilungen, 1871, p. 96.

creased, and in the substance of the lungs were found nodules and nodosities; the visceral pleura was, like the parietal, also studded with similar neoplasms, some of which were attached by a long pedicle.

Gerlach reports a doubtful case of miliary Tuberculosis of the lungs, observed in a goat; and Paulicki has noticed Pulmonary Tuberculosis in *deer* and *gazelles* in a zoological garden.*

With regard to the existence of this disease in the *horse*, Gerlach declared that he had only known of four cases of Tuberculosis in this species. The neoplasms found were in the form of fibrous tubercles, and were situated in the lungs and on the pleura; they resembled the pathological products of bovine Tuberculosis.

Professor Gotti reports, in the *Journal of Anatomy of Pisa* (1872), the following cases, which belong to the subject now occupying us. The description of these cases is not sufficiently explicit as to their nature, but it is very interesting, nevertheless; it was republished in German by Müller and Röll.†

"In opening the carcase of an emaciated horse, there were found on the peritoneum numerous nodosities of various sizes, grey or milky-white in colour, and of a fibrous aspect. Some of these nodosities were directly fixed on this serous tunic, the others were adhering to it by means of filaments of connective tissue. The mesenteric glands were indurated, and all the lymphatic vessels visible. The mediastinum and costal pleuræ were equally covered with nodosities, but these were less abundant than in the chest. One portion of the pulmonary parenchyma presented the lesions of red hepatization, and was full of small purulent foci. Some of the nodosities were hard in their peripheral portions, but softened and transformed into a yellowish mass in their centre. The substance of these nodosities was constituted, according to Gotti, of fusiform cells, giant cells, free nuclei, and a yellow and friable yellow detritus; cretification was rare."

In another case, Gotti only found the nodosities in the chest and on the urinary organs—especially in the walls of the bladder, in the ureters, and the kidneys. Besides the authors above quoted,

* "Fleischkost des Menschen." Berlin, 1850.

† "Oesterreich-Vierteljahresschrift für Wissenschaftlich Veterinärkunde." Vol. xxxix., p. 61.

Tuberculosis has also been noted as existing in the horse by Bruckmuller,* St. Dizier,† Leblanc,‡ Kolb and Hager,§ etc.

Although Dr. Croq,‖ then prosector of Anatomy at the University of Brussels and now professor there, speaks of Tuberculosis in the horse, in a work on auscultation and percussion in their application to the diseases of the thoracic organs, we may justifiably inquire whether this was not a case of Glanders.

Certain authors categorically deny the existence of Pulmonary Tuberculosis in the horse.¶

The *rabbit* is, as many experiments prove, very disposed to contract this malady. The nodosities are, in this animal, as a general rule, constituted by a semi-fluid, puriform mass, containing a little caseous matter in suspension; the rapid cretification noticed in the horse in analogous lesions is not met with in the rabbit. This difference in the constitution of the nodosities again proves that the characters of the tubercle neoplasm are dependent upon the nature of the soil in which it is developed, and that its characters differ not only according to the tissue from which it proceeds, but also according to the individuals in which it is developed and the species to which they belong. It therefore follows, that if we are not willing to consider their macroscopic and microscopic characters, we ought to distinguish fibrous and sarcomatous tubercles, and tubercles of man, ox, rabbit, etc.

Among the other animals in which Tuberculosis has been found, though rarely, may be mentioned the *dog* (Göring, Peroncito, Roustan, Ercolani, and Klebs); *cats* (Bollinger and Toussaint); caged *lions* (Gerlach and Hering); *kangaroos* (Paulicki, Schmidt, Peroncito); and especially in *monkeys*, in which, for a very long time, this affection has been noted by physicians and veterinary surgeons.**

* *Ibid*, 1860.
† "Journal de Méd. Vétérinaire," 1864.
‡ "Recueil de Méd. Vétérinaire," 1865.
§ "Der Thierarzt."
‖ "Central Zeitung für die gesammte Veterinarmedicin," 1853, p. 157.
¶ Cases of so-called Phthisis pulmonalis in horses are frequently reported in English veterinary literature, but it may reasonably be doubted whether they are not cases of chronic Glanders. In all the cases I have seen in which *miliary tubercles* were found in the lungs, these neoplasms had not the characters of those of Tuberculosis, but rather of Glanders.—G. F.
** It may be questioned whether monkeys die so frequently from Tubercu-

Poultry may also contract the disease, the neoplasms developing more particularly in the pulmonary tissue, liver, ovaries and bones.* Göring found thirty tuberculous fowls in one establish-

losis as is generally supposed. Mr. Sutton points out that in the gardens of the Zoological Society of London, previous to his attendance, it seemed to have been the custom to employ the word tubercle or Tuberculosis in a generic sense, including in the term all such affections as Pneumonia (lobar and lobular), empyema, abscess, caseous glands, and the like. Hence, possibly, the origin of the error regarding the frequency of Tuberculosis. From December 1st, 1881, to March 30th, 1883—an interval of sixteen months—110 quadrumana died, and he personally examined the viscera of ninety-three, with the result of finding tubercle in three only. Two of the cases were Rhesus monkeys from India, and the third a Vervet monkey. The disease, he adds, was unmistakable: tubercular Phthisis associated with cavities in the apices of the lungs, in every point resembling the condition met with in the human subject. There were also three cases of Scrofula.—*Diseases of Monkeys*, VETERINARY JOURNAL, October, 1883, p. 253.—G. F.

* See an article on Tuberculosis in Fowls, by Dr. Ribbert, in the "Deutsche Medizinische Wochenschrift," 1883, VETERINARY JOURNAL, September, 1883, p. 189. At a meeting of the Pathological Society of London, held in November, 1883, Mr. Sutton read, in conjunction with Dr. Heneage Gibbes, a first paper on the so-called "Tuberculosis" in birds. He said his attention was first attracted to this disease in the spring of 1879 by a farmer in the north of Middlesex, who had sent him two dead fowls, stating that disease had broken out among his poultry, and that his stock of birds stood a fair chance of annihilation. By thoroughly destroying the bodies of the dead birds, and killing the sickly ones, the disease seemed to be arrested for a time. In 1881, the disease again made its appearance, and nearly all the offspring of the stock of 1879 died. Ducks and geese were not affected in either epidemic. In the latter part of that year, Mr. Sutton commenced work at the Zoological Gardens, where, in the course of his dissections, he found the disease very prevalent. After spending more than two years in investigating this matter, examining from all sources more than 1,000 birds of various species, he proposed to put the results of his observations before the Society under three headings: (1) The anatomy of the disease; (2) its zoological distribution; (3) the histology of the affected organs. 1. The disease first manifested itself in the alimentary canal in the form of yellowish-white nodules, varying in size from a small pin's head to a mass as large as a chestnut. They projected most into the interior of the bowel, thus causing death by obstruction, or projected on the serous surface, setting up Peritonitis. The liver next became the seat of caseous nodules, equally disseminated throughout its substance, at first very minute, but soon attaining a considerable size. The spleen rarely escaped, frequently being so full of these nodules that the capsule ruptured. The lymphatic glands in the neck were affected in severe cases. The mesentery often contained nodules, due to the collection of the morbid material in the ducts leading to the receptaculum chyli. The kidneys, heart, etc., were rarely the seat of gross lesions. Once a deposit had been met with in the lungs. Death was nearly always caused by the mechanical effects of the nodules in the intestines, producing obstruction or setting up Peritonitis. 2. The birds almost exclusively affected by this disease were those which live on seed, grain, and fruit (by grain is meant barley, maize, oats, etc.) Twice it had occurred in flesh eaters, but no case had been met with in those sub-

ment, and he attributed the contamination in this instance to be spread through the medium of the cock.

Inquiry into the existence of Tuberculosis among the different species of domesticated animals demonstrates a fact worthy of notice, namely, that creatures kept through domesticity in the immediate vicinity of man, or confined in stables, sheds, or cages, are those in which the disease is most frequently encountered. Therefore it is that we find it oftenest in cows and pigs, and especially those of improved breeds which are not allowed to pasture, in the mammalia of zoological gardens, and poultry confined in pens. Animals which live in a state of liberty, or are often allowed to go out in the open air, as horses and sheep, are either seldom affected or are altogether exempt.

Tuberculosis resembles those other infectious maladies which, like it, become readily domiciled, and exercise their ravages in badly-ventilated places where the air stagnates, and where, it

sisting on fish. The struthiones, particularly the rhea (South American ostrich), were very liable to this affection. The birds most liable were common fowl, peacock, grouse, guinea-fowl, tragopan, pigeon, and partridge. Possibly the two flesh-eating birds contracted the disease by eating birds affected with the disease. 3. In July, 1883, Mr. Sutton took counsel with Dr. Gibbes, who submitted specimens of the organs of the rhea, peacock, tragopan, and golden pheasant affected with Tuberculosis, to microscopical examination, with the following result :—Sections of the liver, when stained with logwood, showed circumscribed areas surrounded by fibrous tissue, in which were numbers of cells which appeared to be disintegrated. Among them were numbers of small cells which stained deeply. Outside these areas the liver appeared to be normal. On staining sections especially for bacilli, the whole of the circumscribed areas before mentioned were found to be made up of cells filled with bacilli. These bacilli were in cells varying in size, and also arranged in tubular masses in what appeared to be vessels. They had the same reaction to staining agents as the bacilli found in Tuberculosis ; with a high power (×4000) they were undistinguishable from them ; they also contained rounded bodies resembling spores. Bacilli were also found in the lung and lymphatic glands of the peacock, in the lymphatic glands and liver of the tragopan, and in the lung, intestine, liver, and spleen of the golden pheasant. With regard to transference of disease from man to animals, it may be said that on the farm originally watched some pigs had died of "tubercular" Peritonitis. These pigs were fed on the refuse from the kitchen, including the offal from the poultry. At the Zoological Gardens two carnivorous animals, an eyra from Brazil, and a paradoxure from India, died with their livers in the same condition as tuberculous birds. These creatures were fed on small birds and the offal of poultry. Their livers were examined by Dr. Gibbes, who found the nodules contained bacilli, giving the same reaction to staining agents as those found in the nodules of birds' viscera.—G. F.

may be said, the animals rarely move beyond the vaporous zone which they are constantly contaminating.

The principal fact arising from what has now been stated, is that *Tuberculosis is, of all the maladies affecting the domesticated animals, that which is the most wide-spread, and which, of all others, most deserves the qualification of universal panzoöty* (*Weltseuche*).

It has been considered that this somewhat extended preliminary review of the symptoms, lesions, causes, and propagation of Tuberculosis, must necessarily precede the real questions brought for discussion before the Congress, if it were really desired to treat these in a thorough manner.

First Question.

What is the influence of heredity on the propagation of Tuberculosis?

From the earliest times, the hereditary nature of Tuberculosis has found its adherents and its adversaries. To modern science is due the credit of occupying itself seriously with this question.

The older observations relative to the heredity of Tuberculosis were based chiefly on the fact that calves and young pigs, the progeny of parents affected with the disease, sooner or later contracted it. An example of this is given *in extenso* in an encyclopedia of rural economy, by Dr. Krunitz, in 1878,* and the following are the observations with which he terminates his remarks :—"After having sustained considerable losses for many years, owing to the employment of phthisical animals for breeding purposes, the owner referred to got rid of the scourge which had for so long ravaged his cowsheds, by selling his bulls, and gradually ceasing to breed from the cows which, until then, had been used for this purpose."

Numerous analogous cases are to be found in the veterinary journals of Switzerland, Germany, France, England, etc. In every case brought forward in recent times, it has not been positively established that the animals which became diseased had inherited the malady from their parents, and that they had not

* "Encyclopädie oder allgemeinen System der Staats-Haus und Landwirthschaft," Berlin, 1878. Heft XIV., Seite 751.

contracted it after birth, as Bollinger thought. To prove, from a scientific point of view, that heredity is operative in such cases, it should be demonstrated that at birth the fœtus or new-born animal is already diseased, and that, consequently, infection must have been conveyed either to the ovum or the embryo (congenital or congenial transmission).

In these cases, infection might have occurred at different periods of ovular evolution or intra-uterine life. The spermatic fluid might infect the ovum--the infection being most probable if the secretory or excretory organ of that fluid is charged with the contagious principle. The ovum may also become infected through the intervention of the mother, and thus infection may take place *before*, or even *after*, fecundation, if the ovaries, oviducts, or the uterine mucous membrane, are the seat of Tuberculosis.

It may also be admitted that a healthy ovum, fecundated by spermatic fluid equally healthy, is normally developed during the first, second, third, or fourth month, or even longer, and then becomes infected through the blood of the mother. If this infection takes place only a few days before birth, the new-born creature, although apparently enjoying perfect health, is nevertheless in the incubative stage of the malady, which will not be slow to manifest itself.

When the ovum is infected by the father or mother, it does not become developed, or its development is of short duration. In such a case, coition will be unfruitful, and if the infection is due to the mother, she will be rendered completely sterile. If the fœtus is infected during its development, it usually becomes diseased and perishes before birth, being generally expelled from the uterus by abortion.

If infection does not take place until the fœtus is perfectly mature, birth may occur in a regular manner; but the young animal will soon show signs of the disease, and if it is placed in unfavourable conditions it will succumb rapidly.

These different suppositions are quite conformable to the facts which we have ourselves observed in animals affected with Tuberculosis. It is recognised that a large number of phthisical animals only exceptionally breed, or they remain totally sterile;

and this absence of the procreative faculty has been indicated by many authorities, and especially by Roloff, as one of the symptoms of Tuberculosis.

It is equally a matter of general notoriety that abortion is very frequent in phthisical cows. The reports published by Göring, Adam, Röbl, and Magin, with regard to the number of tuberculous calves met with at the abattoirs of Bavaria, and particularly those of Augsburg and Munich, prove that the birth of a phthisical calf at full time is a rare fact.

Among an average of 160,000 calves examined by the inspector at the Munich abattoir,

In 1878 there were	2	cases of	Tuberculosis		
„ 1879	„	1	„	„	
„ 1880	„	0	„	„	
„ 1881	„	0	„	„	
„ 1882	„	2	„	„	*

These figures compel us to admit that the majority of the infected ova perish at the commencement of their evolution, and that a great number of embryos succumb *before* their complete development, and are either expelled, or undergo decomposition in the uterus, in the form of ichorous destruction, or mummification. A small number of fœtuses derived from infected ova are aborted, and a still smaller number are born under normal conditions. Among the new-born, at full time or before it, there may be some which have been infected only a short time before birth, and others which have been contaminated for a more or less longer period—even in the ovum—and which, notwithstanding, do not manifest any morbid symptoms after birth; far from dying from the disease, they may be lively, thriving, and so strong that they grow as if they were in a normal condition.

* Personally communicated by H. Röbl.

(*To be continued.*)

Editorial.

THE FASHIONABLE MUTILATION OF DOMESTIC ANIMALS.

THE vagaries of fashion, which form such a curious chapter in the history of mankind, and constitute a very interesting study in ethnology, are not always limited to the human species, unfortunately, but are manifested in man's dealings with the animals he has domesticated. Not only is there a continual desire to breed or train animals up to a certain standard of fashion—whether with a view to utility or display, gracefulness or grotesqueness, depends upon the whim of the hour,—but when nature cannot be coerced or coaxed into furnishing what is considered necessary, then the hand of the highest animal attempts to transform the humbler brethren into the required model, and individuals are subjected to an ordeal which may or may not be painful, but which results in altering their appearance to suit the taste of the age.

The ordeal is generally of the nature of a mutilation, and consists in removing or altering in some way an important organ or feature, often for no better reason than that the appearance of the animal may be thereby "improved," or that, perhaps, the creature may be rendered more useful. It must be admitted that the improvement-in-appearance plea is that which underlies the prompting to mutilate, and only too often the question whether such improvement is required, or whether, when effected, it is not rather a disadvantage to the animal, and also to its master, is not raised, or it is ignored. Our French friends say of our passion for slaying, that when good weather visits us, an Englishman exclaims, "Here is a fine day, let us go and kill something." Somewhat to the same effect is our tendency to mutilate animals to improve their appearance, or make them "look smart," as it is termed. "Here is a beautiful animal, let us improve it by cutting off its tail, cropping its ears, slitting its nostrils, and clipping off its hair in certain places."

Of all the domestic animals over which tyrant fashion has most ruthlessly exerted sway, the dog and horse may, without exception, be reckoned the principal. The dog has been bred for fashion from the earliest times, with the object of gratifying mankind with a toy or a servant, or providing him with a placid companion or a pugnacious bully; and the creature has been subjected to most painful operations to bring it within the range of fashion, or to minister to some strange superstition—ear-cropping, tail-cropping, "worming," and similar mutilations have been in vogue, chiefly in this country, and flourished most, perhaps, during last century and the first half of this.

The horse has been subjected to various mutilations of a fashionable kind from the earliest times, and the pain and subsequent inconvenience never appear to have been considered.

We do not now allude to the horrible tortures inflicted by the farriers of one, two, or three centuries ago, such as tearing off the hoofs to cure some fanciful disease, removing the nictating cartilage of the eye when that organ was inflamed, and other operations of an irrational

kind. We would rather refer to tail-amputating, nicking, and ear-cropping. As for nostril-slitting, though much practised in the East, from the erroneous notion that a horse in galloping could respire more freely, yet it has never gained ground in Europe—because, we suppose, it could not be made fashionable; and though somewhat extensively resorted to by Eastern equestrians, it is not a mere fashion with them, but a practice having greater usefulness as its aim.

When the horse began to be mutilated to please the fancy of its master, it is difficult to discover. Cruelty to animals was not, as a rule, one of the characteristics of ancient peoples, and humanity to their horses forms a prominent feature in their history. The regard of the Eastern emperors for their steeds, however depraved these monarchs may otherwise have been, cannot be overlooked. For instance, Constantine and his successors from time to time issued edicts, not only regulating the price of horses, but enforcing the mild and proper treatment of them throughout the empire, thereby instructing their subjects in a most important branch of moral justice. It was made penal by the laws to strike the horse with a club or unfair stick, their owners being enjoined to correct horses with a wand or rod; and such were the grateful feelings of the emperors towards their old steeds which had well deserved kindness, that these were maintained for the remainder of their lives as pensioners of the public treasury, and were designated as *emeriti*, or deservedly discharged—a custom which had before prevailed at Rome.

There is no record of ear or tail-mutilation of horses in these early days; on the contrary, well-shaped ears and a long, flowing tail were considered as essential points in a horse.

Plutarch, however, tells us of a custom prevailing in certain foreign countries, of depriving the horses of a portion of their tails, on the supposition that this would "enhance their speed and make their loins stronger" (*Ut equi hoc mutilatione alacriores, et spina dorsi robustiores fierent*). We shall see hereafter that a similar notion was entertained in this country.

Marco Polo, in the thirteenth century, when describing the province of Karazan, in Thibet, alludes to a fashion among the horsemen of cutting off two or three joints from the tail of their horses, so that they might not strike the rider, which was considered disgraceful (*Auferre solerent de osse caudæ, nodos duos vel tres, ne equus sessorim feriiat, et ne caudam nunc hunc, nunc illuc, flectere possit*).

The only mention of ear-cropping we can just now find in ancient writers, is by Xenophon, who gravely asserts that a mare will not associate with an ass until she has been degraded by having her ears cut off.

In the Middle Ages some kinds of horses were probably submitted to "docking" (amputation of the tail), but chiefly in this country, where it was known as a "curtal" (curtailed)—in the French language "curtaud." In the book of regulations and establishments of Algernon Percy, fifth Earl of Northumberland, which was begun in 1512, we find an enumeration of the horses kept for "my lordys and my ladys," and among these is mentioned "a great double trottyng horse, called a

curtal, for his lordship to ride on out of townes." In Gervase Markham's treatise on horsemanship, published in the 17th century, in describing the tricks performed by Banks' wonderfully trained horse, he mentions it as a "curtall."

In the treatises on farriery published during the 17th and 18th century, the operation of "curtailing a horse" is often described, and Wallis (the "Farrier's and Horseman's Complete Dictionary," third edition, 1775) says that "to curtail a horse is to dock him, or cut off his tail;" and he adds that "curtailing is not used in any country in Europe or elsewhere so much as in England, by reason of the great carriage and heavy burdens our horses are continually employed in carrying or drawing; the English being of opinion that the taking off these joints makes the horse's chine or back much stronger, and more able to support a burden." Here we find the mistaken notion, mentioned by Plutarch as being the cause of docking in his time, prevailing, and with the same result, in this country in the eighteenth century. The tail must have been cut very short, as it is directed to operate with a sharp knife made for the purpose, the edge being set between the fourth and fifth joints, and the back struck with a heavy hammer. The bleeding was stopped, as now-a-days, by means of a red-hot iron. Sometimes the edge of the knife was put on the under surface of the tail, while the organ itself was struck with the hammer or a wooden mallet, which frequently led to mortification of the part.

Bracken (the "Gentleman's Farriery"), towards the middle of the eighteenth century, speaks of "docking" being a common operation, and, with other writers, alludes to such accidents as gangrene of the tail, lock-jaw, and sloughing.

With regard to Wallis's remark, that tail-mutilation was more fashionable in England than elsewhere, it may be noted that it was probably introduced into France at the commencement of the seventeenth century. The custom of cropping the beard short, after the accession of the youthful Louis XIII. to the throne, was, we are told, extended by the courtiers to the tails of the inferior animals; a circumstance which caused the Marechal Bassompiere (who had been in prison the twelve last years of the reign of Henry IV., when beards were worn long) to say, on coming to court again, that he saw no change in the world since he had been secluded from it, except that men had lost their *beards* and horses their *tails.*

With regard to the horrid fashion of ear-cropping, it probably began when farriers commenced to become bolder operators, and took a delight in wielding the knife, hot iron, and using boiling oils. It was no doubt prevalent in Shakespeare's time, as in "King Henry IV." (Part I., Act ii., scene 3), when Hotspur is inquiring about his horse, the mutilation is referred to:—

> *Hot.* Hath Butler brought those horses from the Sheriff?
> *Servant.* One horse, my lord, he brought even now.
> *Hot.* What horse? A roan, a *crop-ear,* is it not?
> *Servant.* It is, my lord.

The fashion prevailed more or less up to the beginning of this cen-

tury, and even less excuse was made for it than for "docking;" indeed, none seems to have been offered, except that of making the poor creature "more smart"—the same apology that was given for cropping dogs' ears.

How the operation may have been performed at an early period we cannot learn, but later we are informed that the ear was firmly seized between the branches of an iron mould or "clam," this being so inclined as to give any kind of *crop* that might be required; then, with a large sharp knife—a carving-knife, for example—at one sweep the ear was to be removed. As it was thought highly necessary to make both ears alike, the part that had been removed from the first ear was employed as a guide in adjusting the clams for the second. After the operation, it is pointed out that great care should be observed on putting on the bridle, as the horse will for some time be shy of having his head touched; which might continue for a considerable time, and prove extremely inconvenient.

Another abominable fashion, causing great pain and injury to horses, appears about the same time as the introduction of cropped ears, and with these and "docking" made the poor animals sad examples of what a depraved taste and cruel hearts could make them. The object of the operation was to make the few inches of stump, representing what was the tail, rigid and erect, and to achieve this end two or three—generally three—deep gashes were made right across the under surface of the tail, through the important muscles which pull that organ down, and assist in moving it from side to side. The first incision was made two or three inches from the root of the tail, and the second and third a like distance from the first and from each other.

The incisions were carried down to the bones, and the divided muscles protruding from the gaping wounds were torn out by means of a hook, and cut off, the cavities thus made beneath the skin being filled with tow and bandaged over. Cords were then attached to the tail and passed over the back, where they were fastened to a girth so as to pull the tail up over the back, or they were passed through pulleys placed above the stall, and weights tied to their ends, so as to keep the tail upright until the wounds were healed—each wound being so wide and deep that a long time was required to fill it up; and to expedite a cure, the farriers of those days employed various salves, balsams, etc., "for the purpose of deterging, incarnating, and cicatrising" the wounds. According to White, many horses were destroyed through the effects of the operation or the subsequent treatment. The miserable animal was kept continuously in a standing position for not less than three weeks, the tail all the time being maintained bent over the back or held erect by the pulleys and weights, which were of five or six pounds.

"Nicking" was not much practised until the seventeenth century, when, combined with docking, it became somewhat prevalent in England; and the double mutilation was then, perhaps, practised under the idea that it gave the under-bred horses, then so common in this country, the horizontal-looking croup of Eastern horses. In the eighteenth century the mutilation was quite common in England, but it was not fashionable

on the Continent until Bartlet's and Bracken's books on farriery were translated into French, the first-mentioned by Dupuy, when the *que à l'anglaise* was popularised by La Fosse, and was perhaps as much admired in France as in Britain. From France the fashion soon extended to Germany and over the whole of the Continent. So that, towards the end of the last century, as a rule, all horses were "docked," and carriage and riding horses were "nicked" and "docked," and their ears cropped. Indeed, at the commencement of the century we are told that it was the general custom to nick and dock the tails of all hunters, covert hacks, and waggon horses so close, that nothing remained of this picturesque and beautiful ornament of nature than an ugly, stiff stump, very little longer than the human thumb, which, especially in summer-time, was seen continually wagging to the right or left (it could not be depressed) in impotent attempts to brush away a hungry fly biting the skin only a few inches off.

This, for some reason or other, was designated the "Cadogan tail," possibly because some member of the Cadogan family had sanctioned a little more mutilation than had been previously inflicted, and all troop-horses were made fashionable in this way. Nothing could be more unsightly, painfully comical, or ridiculous, than to see a regiment of these crop-ears and erect stump-tails, drawn up in line, towards the end of the last or beginning of the present century—victims of a very depraved taste, as unreasonable as it was morbid, and worthy of the time in which bull and bear-baiting, badger-drawing, cock and dog-fighting, and the brutalties of the prize-ring, were the fashionable amusements of all classes.

The ear-cropping was the first of the abominable practices to be discarded, though it was continued well into this century. White, in 1815, says it had become more unfashionable than "nicking," and had nearly, and very properly, been exploded. The hideous appearance of the animal no doubt tended much to bring the fashion into disrepute, for it is much to be feared that the pain of the operation or the subsequent discomfort of the horse had but little to do with its extinction. The physiognomy of a horse with its ears cropped short, could not have been very pleasant, and to many who were not accustomed to it would appear as unsightly as the docked tails of now-a-days do. Sir F. B. Head, in "The Horse and his Rider," relates that an officer took to the Cape of Good Hope a gentle, beautiful, thoroughbred mare, which, to his astonishment, the natives appeared exceedingly unwilling to approach. The reason was that her ears had been cropped, and as among themselves that punishment was inflicted for crimes, they were induced to infer that the handsome, mutilated animal had suffered from a similar cause—in fact, that she was vicious.

A more humane and laudable taste was springing up, and writers were appearing who had the courage to denounce ear-cropping, nicking, and docking. White, an army veterinary surgeon, in 1815, asserts of "nicking," that "this cruel operation has become rather unfashionable within a few years"; and with regard to docking, he confesses, "this is a painful operation, to which most horses are obliged to submit. . . .

After the tail is amputated, the most painful part of the operation takes place—that is, searing the bleeding surface with a red-hot iron in order to stop the bleeding." At this time "docking" was only looked upon as a caprice or vagary of the human mind, and no apology was made for it on the score of utility—as none could be made. Lawrence, in his "History and Delineation of the Horse," in 1809, in admiring horses with unmutilated tails, writes: "Most truly, these fine, flowing tails might be put into a buckle, *à la militaire*, yet the *prejudice of custom* will not suffer me to look upon such a fashion for the turf, road, or field, without a smile."

Captain Thomas Brown, a horseman in the true sense of the word, in his excellent and most interesting book, "Biographical Sketches and Authentic Anecdotes of Horses," published in 1830, refers to these fashionable mutilations. He says: "The barbarous and absurd practice of docking and nicking the tails of horses, and the hideous custom of cropping their ears, which was so prevalent some years ago, have ceased to be fashionable. The former was commonly practised on waggon horses, under the pretence that a bushy tail collected the dirt of the roads. That of nicking was chiefly performed on hackneys and hunters, to make them carry their tails high; and that of cropping the ears, from a notion that it made them appear more smart. Thus, from *ideal* necessity, the animal was deprived of two parts essentially necessary to himself and useful to man; for by docking and nicking the tail we destroy the utility of that organ in lashing off the flies and other insects by which he is tormented in summer, and deprive him of a necessary protection against cold in winter. But, of all others, the useless and cruel operation of nicking deserves our most severe censure. This cruel practice of wounding and tormenting the animal, for the purpose of adding to his appearance of smartness, could never be witnessed by the humane without creating a shudder. . . . By cropping the ears, the funnels which convey to the internal drum the impulse of sound, are rendered nearly useless, and hence a horse which has thus been treated is unsafe to be used either on a street or a much-frequented road."

A few years later, Youatt ("The Horse") says that "the shortening of the tail of the horse is an operation which *fashion* requires to be performed on most horses. The length of the dock, or stump, is a matter of mere caprice. To the close-cropped tail of the waggon-horse, however, we decidedly object, from its perfect ugliness, and because the animal is deprived of every defence against the flies. The supposition that the blood which should have gone to the nourishment of the tail causes greater development and strength in the quarters, is too absurd to deserve serious refutation. It is the rump of the animal being wholly uncovered, and not partly hidden by the intervention of the tail, that gives a false appearance of increased bulk." He speaks of Tetanus, caries of the bones, and a portion of the tail dropping off at the joint, as a result of the operation. With regard to the painfulness of "docking," he remarks that some farmers dock their colts a few days after they are foaled, and he states that this is a commendable custom on the score of humanity. With respect to "nicking," he states that "this barbarous

operation *has been long sanctioned by fashion*, and the breeder and the dealer must have recourse to it if he would obtain a ready sale for his colts." He adds, however, "it is not practised to the extent it used to be, nor attended by so many circumstances of cruelty."

Nicking, for some years, has been but little, if at all, practised, though we have seen the operation performed by a veterinary surgeon less than thirty years ago, and have been shocked at the worse than needless torture inflicted upon the unlucky horse to gratify a stupid whim.

The fashion of docking, too, was less prevalent for a time, and was more especially banished from racing and training stables. The late William Day, in his book, "The Race-Horse in Training," writes: "To insist at all hazards on a glossy coat is, in my opinion, only on a par with the barbarous custom of forty years ago or more, to shorten the docks of all horses, young or old. Usually they were subjected to this treatment during the first or second week after their arrival at the training quarters, the operation being performed by the severance of a few inches of the vertebræ of the tail, stanching the hæmorrhage by the application of powdered resin and the actual cautery. Happily for the tortured animal, the practice has long ceased, as has nicking. . . . All men now prefer to see the noble animal as formed by nature, rather than in a mutilated shape, disfigured at the hands of capricious humanity."

Most unfortunately, the practice of docking, never discontinued, has become very common of late years, and especially since the introduction of the game of Polo; and it is to be apprehended that the cycle of pitiless fashion may also once more bring into the category of animal mutilations, the equally absurd and cruel practices of nicking the tails and cropping the ears of horses. Sometimes docking is performed by a veterinary surgeon, but far more frequently it is done by the farrier, blacksmith, or horse-dealer; and it is the latter, we believe, who is mainly responsible for the extension of the cruel practice. Quite recently we inspected eighteen horses in a dealer's stable; these animals had been brought from the country to London only a few days before, and fourteen of them, of ages ranging from five to eight years, had been docked immediately before we saw them, and therefore since their arrival. About one-half of the tail had been amputated, and, to arrest the bleeding, the flesh had been roasted away by the hot iron to such an extent as to leave the bones of the tail protruding, white and dead, to the extent of a quarter to half-an-inch. These animals had been docked for sale, and with no object in view except that of improving their appearance. Anything more repulsive can scarcely be conceived than the sight of these stumps, and sloughing and carious bones, if not worse, must have been the result of the operation.

It is probable that the majority of horses, apart from those in the army, are submitted to this reprehensible operation, and chiefly while in the hands of the dealers. However much one may be desirous of purchasing horses with non-mutilated tails, it is most difficult to find them in this country. Polo ponies are only left a few inches of a stump, and carriage and riding horses—especially hacks and hunters—are unmercifully curtailed of their fair proportions.

Those who are in favour of this disfiguring, painful, and torturing mutilation of the animal which is of all others most useful to man, and is at the same time most persistently abused and maltreated by him, bring forward some extraordinary arguments in favour of the fashion, or in attempts to prove that the operation is not painful. It is needless to say that scarcely any of these arguments deserve serious notice, as they are as destitute of foundation as that which, employed since the time of Plutarch, would have us believe that the horse's back is made stronger by removal of the caudal vertebræ.

One argument is to the effect that the operation is nearly, if not quite painless, owing to the low degree of sensibility possessed by the tail, and by the rapidity with which amputation may be effected. Nothing can be further from the truth than the assertion that the tail is endowed with little sensibility. It is composed of bones, muscles, nerves, and blood-vessels as abundantly as any other part, and these are enveloped in skin, as delicate and sensitive (on the under surface) as that on the most sensitive region of the body; this may be readily demonstrated by pricking it with a pin. The rapidity with which the tail may be chopped off is no argument that the animal does not suffer at the time and subsequently; suffer it does, and it betrays this suffering in the most unequivocal manner. The amount of pain subsequently experienced will depend to some extent upon the manner in which the amputation has been performed; but suffering is always experienced, and if the operation has been badly done, this may be very great. Tetanus is sometimes a consequence of the operation, however skilfully conducted; suppuration and carious bones are far from uncommon, and we have been compelled to re-amputate more than once, in order to cure horses which had been "docked" before they came into our hands.

Another plea in favour of docking, is that removing some inches of the tail prevents harness horses throwing it over the reins, and consequently running away or kicking. This plea also will not bear examination. From inquiries instituted during many years, and from personal experience, we find that when horses have run away, or kicked, owing to the reins getting under the tail, these animals have invariably been "docked," and their behaviour was, no doubt, due to their remembering the painful operation, and consequent dread of anything touching the tail. We have never found undocked horses afraid of the reins about their tails, and in our colonies, and in countries where docking is not practised—as in the United States—where driving is perhaps as common as here, horsemen would laugh at the idea of lopping off their horses' tails to prevent these getting over the reins. A short tail is more readily thrown over reins than a long one, as it is more horizontal, and the reins can more readily drop under it. Besides, a person who would allow his reins to drop under his horse's tail is not fit to be a driver. To show that the danger of driving horses which have not been docked is purely imaginary, so far as reins and tail are concerned, we may mention that a tramcar company in London purchased fifteen hundred American horses some years ago. These horses' tails were the natural length, and the animals themselves were as spirited and impulsive as well-bred

English horses usually are. The drivers sat below the level of their horses' hind-quarters, consequently the reins were always more or less in proximity to the tail, and yet no accident has occurred from the reins getting entangled about the tails.

Many more facts might be adduced to show how utterly baseless this plea is. Of course it cannot be brought forward in favour of saddle horses, which are subjected to the mutilation quite as much as, if not more than harness horses.

It has sometimes been brought forward as a pretence for docking, that harness horses often have their tails "rubbed raw" or injured through contact with the vehicles they draw, and that amputation is necessary in order to fit the animals to the carriages. If anything could bring docking into disrepute, surely this excuse would. Our venerable, and always instructive contemporary, *Punch*, not long ago had an amusing instance, which illustrates the absurdity of the plea of attempting to make horses fit harness and carriages, instead of these being fitted to the horses. An old gentleman is having his boot fitted on by a son of Crispin, who suggests that the fit would be all right if his customer would only have a piece pared off his toe—have his foot made to fit the boot, in fact. The indignant client demands that the boot should be made to fit his foot, not his foot mutilated to suit the boot.

The riders' arguments in favour of docking are quite as groundless, and scarcely require notice. The chief is that the tail bespatters the rider in wet weather or on muddy ground. Removal of the hair from the end of the tail should remedy this evil, without chopping off the tail proper. And some strange notions prevail with regard to the length of the "dock." We have measured some hundreds of undocked horses, and find the average length of the caudal appendage to be about twenty inches from root to tip—what might be looked upon as short, if the hair is cut away from the end, and very unlikely indeed to incommode either rider or driver.

The disadvantages of "docking" are manifold, and must be obvious to those who care to inquire, have no pecuniary interest in the operation, and are not fettered by the restraints of fashion. Rarely indeed do we find that nature bestows anything in vain, and the horse's tail, apart from its being an ornament, must be considered a most useful organ. In the first place, it covers and protects from exposure parts which should be concealed and protected from accidental injury, the effects of weather, and the attacks of insects. It is very disgusting and painful to see horses, and especially mares, with only a few inches of tail left, showing these very sensitive parts exposed to gaze and external influences, the animals being utterly helpless to defend themselves from the latter. The skin of the horse is almost morbidly sensitive over the whole of the body, and is especially so to the presence of insects; therefore nature has provided exaggerated defences which none of the other domesticated animals so much require, in the shape of a forelock, mane, and tail abundantly provided with long hair. The forelock protects the eyes and roots of the ears, the mane the sides of the neck; the upper part of the body has the special provision of a skin muscle, which is so powerful as to spasmodically

wrinkle up that covering and shake off any offending objects, while the mouth can assist in this act; and towards the flanks, over the quarters, under the dock and belly, and between the thighs, where, perhaps, sensitiveness is most developed, the unmutilated tail with its long hairs is the only protection the creature has. Remove this protection by the painful operation of "docking," and the life of the animal is ever after rendered miserable, because it has no means left for freeing itself from annoyances which are, more or less, always present, but are felt most severely in warm weather. The tail reaches those parts which the horse cannot touch with its mouth, and to which the corrugator muscle of the skin does not extend its action. Therefore the fashionable mutilation, in itself deforming, painful, and annoying, is a life punishment to the poor horse. We remember seeing, many years ago, a print of two horses at pasture, one of which, with a long, flowing tail, and fat and healthy, was heartily cropping the herbage, while the other, docked short, was a gaunt skeleton covered with flies, whose annoying bites and titillations in the region of the flanks and thighs it could not possibly defend itself from. In a corner of the paddock was a notice board, the significance of which was unmistakable, to the effect that long-tailed horses were grazed for six shillings a week, and "bob-tailed ones" for two shillings.

Army horses are not "docked;" no inconvenience has ever been reported because of this; on the contrary, horses which had undergone this operation would not be so serviceable, and should therefore be rejected.

Such operations as docking, nicking, and ear-cropping of horses must be classed as those which are not only cruel in themselves (useless and painful operations are cruel), but which render animals less valuable.

The veterinary profession must stand by its motto of "Science, humanity, and utility." Chopping off horses' tails for mere fashion's sake, is neither a scientific, humane, or useful operation, while it sins against that good taste which respects the proportions and admires the beauties of a perfect horse. England has hitherto stood pre-eminent as the country in which horse mutilation has flourished. Let it not be said of the veterinary profession that, for the sake of a few paltry shillings, it panders to this depraved taste for deformity and imperfection, which is accompanied with pain and annoyance to an animal that should be taken under special protection, and guarded as a creature too sacred to be submitted to the wild follies of fashion.

ORIGIN OF THE HORSE.

M. WORTMANN has made an interesting study of the horse from the point of view of transformation. It is certain the promoters of the theory of evolution of organic forms have not done sufficient when they rest satisfied with accumulating theoretical arguments to show that the present species are derived from pre-existing forms, under the influence of external circumstances and of vital concurrence.

Something more is wanted: it is necessary to study carefully fossil forms,

there to follow geological succession of organic forms, to take at length paleontology for the basis of general zoology.

In placing it in this way, nothing can be better than to undertake the thorough study of one form of animal. It is this M. Wortmann has done in selecting one of the most important members of the order of hoofed creatures with double digits, the horse that naturalists call the Equus Caballus.

Let us first define the term, "ungulate." They are all those animals provided with hoofs, following the classification of Professor Cope, who has made an especial study of the subject in an American scientific paper ("Proceedings of the American Philosophical Society, 1882").

Mr. Cope identifies the Taxeopodes, which are now only represented by the African daman, but which in the eocene epoch formed an important order in America; then come the Amblypodes, a group quite distinct, still represented in Europe and America. The third group is that of Proboscidians, which includes elephants and mastodons; the fourth comprising the hoofs in single digits (the horse, tapir, rhinoceros), and the hoofs with pair digits where the foot is forked (sheep, oxen, and camels).

The fundamental bases of this classification are taken in the structure of the members, and particularly in the modification of the tarsus and the metatarsus. There exists in these parts a decided distinction, which closely indicates that the form of the foot in vital concurrence has been a predominating feature.

Animals whose feet are not perfected and developed after a certain manner have disappeared.

It is thus, says M. Wortmann, that Kovalewski first pointed out, and Cope has since elucidated the fact, that the first type of animals were Pentodactyles and Plantigrades. Cope has equally demonstrated that these animals present a serial arrangement of the carpal and tarsal bones—in other words, that the bones of the first row are exactly in apposition with those of the second.

This type of carpal and tarsal arrangement appears only in the elephant and daman amongst living animals; these are, then, if the expression may be permitted, backward types.

When the peculiarity commenced, the bones of the second row effected a movement of rotation inwards, which has coincided with the disappearance of the thumb or first finger; it is placed in the spaces between the bones of the first row, and from this the articulation gains a far greater power of resistance. It is, then, this type which has prevailed in the struggle for existence.

The section of hoofed animals to which the horse belongs is anatomically distinguished by what is called the third trochanter, a projection sufficiently distinct, and placed on the femur, independent of the two tuberosities offered by this bone superiorly. There are again some other characters which we shall not detail here.

They have divided these hoofed animals into ten families, including about fifty species.

With especial regard to the genealogy of the horse, there are only four of these families which are of importance. The Lopheodontidæ, the Chalicotheridæ, the Palæotheridæ, the Equidæ. Geologically these animals succeed each other since the lower eocene earth till the formations of the present day.

In the Equidæ of latest form the digital arrangement has become single in each foot.

Mr. Cope published, in 1874, a pamphlet on "L'Origine et les Homologies des Types des Dents Molaires chez les Mammifères"; he has noted two types of dentition, the type in which the teeth present a deep crown with blunt elevations, and slightly projecting on their grinding face, corresponding to a short intestinal canal; and a second type, where the crowns of the teeth are

prolonged in a vertical direction, and in which the grinding surface presents complicated folds formed by plates of enamel, accompanying a complicated digestive mechanism, and an alimentary canal of greater length.

These two types represent two different kinds of life, the first applying to omnivorous, the second to herbivorous animals, which are organized so as to draw nourishment from substances containing few nutritive elements, living in open plains and forced to rapid movements.

Mr. Cope propounds the first as an arch-type from which the second was derived, and proportionally in the same measure as the teeth changed, consequent on changes in the *régime*, the members changed equally.

M. Wortmann attaches great importance to the study of Taxeopodes, represented, as we have said, in the present day by the daman of Africa. These animals appear to him, with regard to their teeth and members, to be the ancestors of hoofed creatures with divided hoofs.

Mr. Cope has raised a very interesting faunus from the eocene bed of Puerco during the last two years, which has great interest in connection with the subject we discuss.

Figures are necessary to remind us of the analogies and different conditions observed by Mr. Cope. We shall only speak of those which attain in succession to the character of the existing horse; the last terms are the following: Hippotherium—Protohippus—Equus.

A gradual change of the foot has brought with it a greater power of movement in the mandibular articulation. Following the cause of reduction of the digits, says M. Wortmann, Mr. Cope has shown that in plantigrade quadrupeds the extremities of the digits become arranged in the form of a semicircle in touching the ground. When moving quickly, the heel and the thumb are lifted from the ground, thus causing the weight of the body to be carried by the lesser fingers.

The continual repetition of this posture in animals unable to await the attacks of their enemies, and able only to seek their safety in flight, and the thickening of the middle finger, or digit, and corresponding atrophy of the lateral ones, caused them to conform to the law which rules the usage and want of usage of parts.

This reduction of digits was accomplished gradually, thus creating at length the soliped, or modern horse of one digit.

DOES "SMUT" IN PLANTS CAUSE ABORTION IN CATTLE?

THE influence which certain fungi exert in the production of abortion in cattle, is often alluded to by those who have studied the causes of this accident, and on the whole the existence of such influence has been affirmed. A recent writer in the *National Live Stock Journal*, of the United States, would appear to doubt the influence of what is known as "Smut," from the experience derived in feeding cattle with grass so infested. He says: "When abortion among cows became epidemic in the cheese-producing districts of New York and Eastern Pennsylvania, the cause was, for a long time, quite confidently believed to lie in the 'Smut' developed in the heads of June grass that abounded in the pastures, much of which ran up to seed and often blasted. An accidental circumstance gave the writer an opportunity of testing the validity of this opinion. A field of five acres was loaned to a neighbour for a specific purpose, who agreed, in any event, to pay a stipulated sum for the use of it, so it was left for his use till, by reason of excessive wet, it was too late for any spring crop, and therefore remained unploughed all summer. It had been occupied with barley the year before, and as there

was time after harvest for weeds to spring up and mature, the ground became well seeded with barn grass (*Panicum crus-galli*), which came up plentifully the next spring and produced a heavy crop for that kind of grass. When it had reached its full size it was cut and cured for hay, and about the middle of March foddering began, it being fed to ten cows kept in a barn by themselves. They ate it freely, and all seemed to go along well till the second day of April, when a cold snap occurred, accompanied with very high wind, and the mercury fell to 18° above zero. The extremely high wind made it so uncomfortable for cattle to be out that they were turned out to water in the morning and immediately put back into the stable, where they remained without suspicion that anything was going wrong till towards night, when it was discovered that the feet of five of them were frozen, and two of them so badly that they died from the effects, and the other three were damaged to the extent of twenty dollars a head. Exercise, thorough grooming, and a cessation of the wind saved the other five from a similar fate, and they went through all right, though the extremities of all were very cold and numb. Upon examination, it was found that the blood of all in the stable had become unusually dark-coloured and thick, so that its circulation was impeded in the feet and legs and ears and tails of all. This led to an examination of the barn-grass hay. It had been noticed when harvesting to be somewhat smutty, but as the straw was bright and green, and the cows ate it apparently with a good relish, no harm was suspected. A closer examination now showed that the heads which appeared plump and full of grain had hardly a kernel of seed in them. The hulls of what appeared to be seed, were crowded full of smut, so that the cows must have taken in a heavy allowance of it at every meal. That this free use of smut was the cause of the dark colour of the blood and its stagnation in the feet and legs and the consequent freezing, was evident from the fact that the remainder of the herd—twelve in number—which were kept in another barn, with only the same protection, and treated in the same way, except that they were fed common hay, came through all sound and without appearing to be inconvenienced by the cold and wind, and from the further fact that the same cows which were frozen at a temperature of 18° above zero had, in the previous February, and in the same stable, for two days endured the unprecedented cold of 28° below zero, without freezing or seeming to be much disturbed by this extreme weather. None of these cows aborted, though fed for some three weeks with so much smut as to produce the extraordinary effects stated. If the epidemic abortion was generally caused by the existence of smut in the hay the cows were fed, it must have occurred in this instance, where so much of it was taken for so long a time. The fact that it did not, clearly indicates that though smut may be a provoking cause, it is not the general cause of its occurrence over the vast extent of territory in which it has appeared."

FOOT-AND-MOUTH DISEASE IN THE UNITED KINGDOM IN 1883.

THE serious visitation of Foot-and-Mouth Disease in the past year, shows how culpably defective the arrangements are in this country for the exclusion of contagious diseases of animals, and for their suppression when introduced. The legislative measures at present in force are either incomplete, or are incompletely carried into effect—we believe they are both; and taking the year 1883 as evidence of this, we think the country would not be much worse off if there were no interference with either the importation or internal movement of cattle, sheep, and pigs. To admit these animals from infected countries is

a blunder, and to attempt to control or suppress the disease when it is allowed to invade the country, as is now done, is as great a blunder. Among the several causes which tend to spread and maintain the disease, is the action of the local authorities, and especially their tendency to appoint as veterinary inspectors men whose only qualification is the absence of qualification—a tendency which has been particularly fostered by the recent unaccountable proceeding of the Privy Council, in going out of its way to put members of the Royal College of Veterinary Surgeons and unqualified "existing practitioners" on the same platform as inspectors under the Contagious Diseases (Animals) Act.

The *Standard*, in an excellent article on British Agriculture in 1883, as all the other public papers have done, alludes to the progress of the scourge. It would appear that the spread of infection was comparatively slow during the first half of the year, and it was not till the week ended September 8th that the climax was reached. In the six months ended June 30th there were 3,462 outbreaks, attacking 114,102 animals. From that time till September 8th the disease spread with alarming rapidity, reaching the maximum of 1,402 outbreaks, and 21,589 animals attacked, on the date named. Since September 8th there has been a gradual though not a constant subsidence of the epizoöty.

The following table shows the numbers of outbreaks and diseased animals for the first half of the year, for the ten weeks ended September 8th, for each week subsequently up to the date of the latest official returns, and the totals for the year up to that date :—

1883.	Outbreaks.	Animals.
Six Months to June 30	3,462	114,102
Ten Weeks to Sept. 8	4,218	89,090
Week ended „ 15	1,004	24,881
„ „ „ 22	1,049	23,018
„ „ „ 29	983	20,610
„ „ Oct. 6	758	16,504
„ „ „ 13	641	15,421
„ „ „ 20	556	11,260
„ „ „ 27	600	12,700
„ „ Nov. 3	665	12,970
„ „ „ 10	674	11,238
„ „ „ 17	549	12,778
„ „ „ 24	611	12,842
„ „ Dec. 1	631	14,006
„ „ „ 8	497	11,753
„ „ „ 15	457	11,944
Total from Jan. 1st to Dec. 15th	10,355	415,117

For the whole year the number of animals attacked will be about 440,000. This is exclusive of the number in Ireland, and as the contribution of Scotland to the total is insignificant, the seriousness of the epizoöty in England and Wales is obvious. That very few counties have escaped the infection is shown by the fact that in the Order in Council recently issued, closing nearly all the markets of England and Wales for store stock from December 26th to February 29th, the only whole counties exempted are Cornwall, Cumberland, Devon, Hereford, Monmouth, Oxford, Westmoreland, Wilts, Brecon, Cardigan, Carmarthen, Merioneth, Pembroke, and Radnor. These counties have not all escaped, but they are free, or nearly free, from the disease at the present time. The Order will paralyse the live-stock trade wherever it is

in force, which it is in a vast majority of the markets of the country, as it prohibits all public and private sales except by license of the local authority, and that can be given only when the animals are to be marked for slaughter within six days, a regulation which excludes store stock. Such a vexatious interference with the internal traffic is intolerable, so long as live animals are admitted to our water-side markets from countries in which Foot-and-Mouth Disease is known to exist.

ACTINOMYKOSIS IN MAN.

THE wide prevalence of Actinomykosis among the bovine species in this country, and the increasing attention directed to the malady since its presence was, for the first time in English veterinary literature, announced in this Journal, led to the suspicion that, as in Germany, so in these islands, it would be found also in other species, and doubtless in mankind. We have lost no opportunity of putting physicians and surgeons on the alert, with regard to recognising the disease in man, and a case has at last been discovered, though there can scarcely be a doubt that there are others not yet diagnosed; indeed, there is reason to fear that such instances are not so rare as we should like to believe.

At the meeting of the Pathological Society of London, on January 4th, Mr. F. Treves showed a living specimen of Actinomykosis in a man aged forty-six. The disease had begun as a nodule, about the left side of the neck, and had spread downwards over the chest on the same side. All stages of the malady were represented—from minute solid outgrowths to large masses with suppuration and sloughing.

Professor Osler, of the Montreal Veterinary College, informs us that Actinomykosis in cattle is very common in that part of Canada.

EVERY-DAY MATTERS IN AN INDIAN MILITARY VETERINARY PRACTICE.

BY J. H. STEEL, M.R.C.V.S., A.V.D., IN VETERINARY CHARGE, R.A., H.S.F., SECUNDERABAD.

(*Continued from page* 33.)

VARIOLA EQUINA has a sort of suppressed existence here. Whether it has any relation to Small-pox among the natives it is hard to say, but a short time ago, while Small-pox was prevalent in the bazaars of the villages about this station, there were a few mild cases of Horse-pox. Although this was the first time I had seen the disorder, I suspected its nature from the accurate account of cases given in the VETERINARY JOURNAL for 1882. The sudden invasion, the acuteness of attack, and the eruptions being on the skin of the external nostril, for the most part, enabled me to at once determine that I had not to do with Glanders. These cases proved sporadic, and since them I have had two cases of Nasal Catarrh, which very probably were Variola, but afforded no indubitably diagnostic indications.

TETANUS has not visited these lines since I have been in charge. This is rather noteworthy, because in other parts of Secunderabad it has been frequent. Thus among the young Arabs and Persians of the Hyderabad Contingent (Bolarum) several cases have occurred subsequent to castration, and the same may be said of the remounts of the 3rd Madras Light

Cavalry (Bowen Pilly). I have heard of other cases in the cantonments around, and so am led to ask whether the non-occurrence of Tetanus here is attributable to special climatic influences, or to anything in the method of treatment of wounds, notably those which are made in castration. Both Bowen Pilly and Bolarum have a moister climate than Trimalgherry, and the sick lines here are freely open to breezes from every direction, whereas those at the two places mentioned are somewhat shut in and low-lying. Our boxes and stables are better ventilated than the others, and are well away from other buildings, and we are exposed to greater extremes of heat and cold: possibly these differences have some influence. We do not castrate so many animals here as are operated on in the other places, but still wounds of various kinds are numerous. We always adopt antiseptic treatment, not on strict Listerian principles, which are quite inapplicable to veterinary surgery, but much in the same manner as it would be carried out by military surgeons in the field. Indeed, we often think that ordinary veterinary surgery necessarily resembles, in "roughness and readiness," and in the impracticability of ultra-refined methods, military field surgery. Although strict antisepsis and non-interference with wounds may prevent Tetanus, we are not in a position to say absolutely that it does so. From what I have seen of Tetanus in India, when it does occur it runs its course very rapidly to a fatal termination, and so is not very amenable to treatment. Indeed, it must be *striking to a new arrival in this country how swiftly death supervenes.* Acute cases prove very acute: chronic cases are infrequent. There has been much discussion *on the difference in type between diseases at home and those seen in India.* Certainly the latter are asthenic among imported horses, especially Australians. But this is especially due to climate, and so we find it most marked during the rains. In India the hot weather is a period of rest for the land and indigenous life, but for non-indigenous animals and plants, while it is one of enforced quiescence, it is also most exacting on the health. Liver, skin, spleen, as the case may be, give way when exciting causes of disease come into operation, and dropsies of various kinds become frequent. Besides œdematous swellings of the legs, under the chest, in the sheath, under the jaw, etc., we find that every wound, however trivial, is associated with much effusion. Sometimes the injury is so slight that it requires the greatest care to discover whether the Œdema is traumatic or idiopathic. Thus iron tonics and vegetable bitters, such as the indigenous gentian, chiretta, and kutki, are required in abundance at this time of year. Instead of healthy processes of repair at this time, wounds become unhealthy, ulcers discharging an ichorous pus; often they increase in size so rapidly as to become phagedænic. They require stimulant treatment. Carbolic applications no longer suffice, except that the red carbolic powder is of value in keeping away flies, and acting as a stimulant as well as antiseptic. Tincture of myrrh, turpentine ointment, and sulphate of copper, or zinc lotions, are now required. Something is especially needed to keep away FLIES, which, perhaps, convey Bursatti, and certainly directly irritate wounds and deposit eggs in them, which develop into maggots. It is scarcely possible, without actual experience, to realize the nuisance which insects in general, but flies in particular, are in a tropical country. Tolerated and all but encouraged in the bazaar, they are scarcely noticed by the natives: they actually blacken the sugar and other articles exposed for sale. They crowd in horrible force around a wound or over the body of a sick animal. They constantly irritate even healthy animals, and especially attack the inner canthus of the eye. Even thick eye-fringes do not, in many cases, suffice against them: the eyelids become swollen, and the membrane even petechiated, tears trickle on to the face, and in ill-kept animals maggots form at the canthus. I have known an instance in which tumour on the side of the face resulted from maggots accumulating in the ductus ad nasum, and causing in-

flammation with abscess. To protect the eyes, natives cover them during the day with a cloth. I have seen Bursatti at the inner canthus of the eye, probably brought thither by flies. When a wound which has been doing very well ceases to progress, and the parts around swell, MAGGOTS must be carefully looked for: sometimes they are extremely minute. When the tissues of the wound turn black, discharge a thin, watery fluid, and can be easily removed with the end of the finger, it is an almost sure sign of maggots. There are a number of agents which are effectual as dressings for destruction of maggots. Among them we may enumerate turpentine ointment, camphorated oil, and chloride of zinc lotions. Either of these also may be used to prevent attacks of the fly. Meyrick's plan, of smearing with sulphur ointment, has not always answered thoroughly with me. I now use the ointment mixed with much carbolic acid. Carbolic oil does not keep away the flies; even strong solutions of soluble phenyl did not suffice; cow-dung fires to windward have not answered well. Altogether, the flies in Secunderabad seem to be a most determined and enterprising race, to be kept away as much as possible by gauze dressings, and, especially, bandages whenever practicable.

Apart from the WOUNDS which occur from animals falling when out in the field or on the road, we have to deal with many due to injuries in the stable or to the carelessness of syces. Many abrasions of the surface result from hard floorings. The fronts of the knees and fetlocks, the points of the hock and hip, and the outside of the hocks where the flexor sheath bulges outwards during flexion of the joint, are the most frequent seats of these abrasions, which may attain much importance when aggravated by flies during the rains. If enough bedding grass could be obtained at all times, or sand-beds be permitted, such abrasions would seldom occur; but horses with nothing else to do frequently amuse themselves and cause Colic by eating the bedding grass. Most of the knee and fetlock wounds are said to occur from animals falling down in their sleep; but many, certainly, result from horses stretching too far in the attempt to reach grass which has been blown or pushed out of their range. Bandages, boots, etc., are used to protect the joints; but when such appliances are numerous it must be taken as not creditable to the battery, and due to want of proper adjustment of heel-ropes, thorough care of bedding, and due supervision by stable-guard. We need not here enter into the question of the use of sand-beds; suffice it to say that there are sanitary objections to them. Many cavalry officers say that the sand breaks the hairs of horses' coats, and so prevents them looking well and glossy. This state, however, generally results from use of the curry-comb to the skin, a practice of which syces are very fond. There can be no doubt that the free use of a good straw whisp is the best means of keeping the skin healthy. The frequency of skin disease in some batteries is directly associated with want of thorough care of the skin. The process adopted by natives, "malishing"—friction, *sec. art.*, with the arm up to the elbow—is a very invigorating and useful process, but syces are a shifty race, and require much supervision. A very good test as to whether they do their work thoroughly is to look at the horses' ears. Any bleeding, absence of hair, or exudation around their margins is due to TICKS, of which this seems the favourite seat. These parasites are often found in large numbers closely clustered together, and firmly adhering, varying in size from a pin's point to a mustard-seed. They are, when large, of a lead colour, and contain much blood. They seem to be a distinct and well-marked species. It is sometimes thought that they come from cattle, but this is a larger form. Very large lice may often be found in the hollow of the heel, or inside the thighs, and on the scrotum—in fact, wherever the skin is thin and protected. Feeing the groom for every one found is the most effectual means of getting rid of them. Occasionally in these latter situations acutely-inflamed swellings occur, due to TICKS FROM CATTLE, it is said, and the lymphatics passing from

them may be involved in the inflammation. A little ammonia or vinegar to these lessens the pain, and they quickly disappear, but I am not quite sure whether they are due to ticks only.

SYCES are very extraordinary animals! It must be taken for granted that the whole race is unreliable. Still they get on very well with their horses, who tolerate them in a very remarkable manner. Experience in India very shortly leads you to understand that when you are not looking at him the syce is sleeping, wrapped up in his horse's jhool, eating, or larking. If sent out to give the horse exercise, he meets some friends similarly occupied, and they "loaf" along, jabbering all the time, not looking at the horses, who learn the habit of stopping "dead" when they want to pass dung, of walking badly, and of dragging the toes. At other times, especially when sahib is away on leave, the syce is a picture of activity. Mounted on the horse, he urges it at full speed along the hard road, his reins up in the air, and his legs and arms flying all over the place. Next morning the horse comes to the sick lines with some wound or sprain, which is explained in the most plausible manner. Or it may be with a SORE BACK. I was, on first coming out, of opinion that a native's posterior would gall before a horse's back, but have since found reason to change this, like many another preconceived idea, and to accept the opinion of the experienced. Syces consider it their bounden duty, when a horse is troublesome, to let him loose. Unfortunately this country is cut up with nālās, covered with huge blocks of granite, or with small, sharp stones of the same material; hence some nasty accidents occur to runaway horses. Some of the worst wounds are caused by the animal when going at full speed, slipping up on the paving-stones round the water-trough. I have had a few cases of Fractured Pelvis here, and one of separation of the external small trochanter of the femur. This latter lesion is a most unsatisfactory one to have to deal with. It results from a sudden wrench when the lower part of the limb is fixed. The process breaks off cleanly at its junction with the shaft of the bone. Crepitus can be detected at first, but later some backward displacement occurs, and thickening around the fragment, which in its new position interferes with the muscles of the quarter. The animal is rendered all but permanently lame. And the action of the gluteus externus being uncounteracted, the limb is brought forward in front of the other hind leg in an uncertain and dangerous manner. The patient recovers sufficiently to trot sound straight forwards, but his action is uncertain and unsafe when he turns. This form of injury must not be mistaken for Paraplegia, commonly known in this country under the name of KUMREE. Although I have had a few cases of incipient Paralysis here, I don't think I have had any true Kumree. This may be due to uniformity in the character of the air blowing over our lines; but one important cause of the disorder is removed in the impracticability of onanism (the horses being castrated), to which Veterinary Surgeon Gunn, in his recent prize essay on the subject, attributes many cases of Paraplegia. I remember reading in a French veterinary periodical a case of ONANISM in the horse, which was considered very remarkable, although we might have thought that their Algerian experience would render French veterinarians familiar with this vice. Idleness and a stimulating climate prove predisposing causes in this country. We are not long in becoming familiar with a sort of belly-shield, covered with sharp spikes, which is used as a preventive. Kumree is generally most prevalent in moist districts, especially where a land and sea breeze alternate. Any wind which comes to us here has to blow over hundreds of miles of dry maidan, and the winds are most regular. None of them are pestiferous, in so far as I am aware, although some are very trying, notably the dust storms, when the air is dark with sand driven along at a terrific rate, and which penetrates everywhere, even more thoroughly than snow (of which we never get any here). Although

the dust proves irritating to the eyes, and its grittiness between the teeth is very annoying, no other ill consequences seem to follow this remarkable natural phenomenon; on the contrary, the dull, sultry air becomes cooled and fresh, and revives animal life to a remarkable degree.

Doubtless you are surprised that I have not hitherto dealt with that remarkable disease known as BURSATTI: I have not done so because it is comparatively rare here. Last year being an exceptionally dry one, it was notably so. But this year I have several bad cases. There are several questions which require to be discussed in this connection. Firstly, *what is Bursatti?* It is a specific disorder, certainly; no other produces so characteristic and special a substance as kŭnkŭr. A practical acquaintance with this disorder has tended to support the parasitic theory as to its nature: the phenomena of the disorder are those characteristic of vegetable parasitic life. *It is most important to decide whether flies really convey the disease.* I have no incontrovertible evidence that they do, but consider it quite possible, and so take every precaution against such means of communication of so foul a disorder. The case above alluded to, of Bursatti of the inner canthus of the eye, seems to be strongly in support of the theory of flies as Bursatti-conveyers. *Is it communicable to man?* Certainly not *readily*. I have operated on cases of this kind with wounds on my hands with no ill consequences. The enucleation of kŭnkŭr nodules, and scraping away of the morbid matter, is quite a novelty, and a very trying and vexatious one in surgical experience. For the latter purpose the finger-nail is, perhaps, the best instrument, as with it you have a great amount of touch to guide your scraping operations. I do not think any injury to yourself is likely to follow, although in one case while thus working I felt a sharp puncture beneath the nail which subsequently became the seat of a small, very painful abscess. *Do ordinary wounds become bursattic during the rains?* I do not think they do. The most doubtful cases are some stable grazes about the fetlocks; but even here generally, perhaps always, the primary condition is idiopathic, for the fetlock is a very favourite seat of bursattic eruption. There are certain *sores which break out on the lips of horses during the rains*, some at the angle of the mouth, others on the margin of the lips lower down. In their earliest stage these are simple, bronze-coloured changes of the cuticle; later they have hardened bases and inverted edges, an ichorous discharge, a general unhealthy appearance. Yellow, sloughing portions of tissue lie on their surface. They remind you somewhat of the ulcers seen in calves in that form of "Actinomykosis" which has been described as "Tubercular Stomatitis." Careful examination of some of them shows small kŭnkŭr nodules diffused thoughout their substance. Their bursattic nature has been much doubted, but I am convinced that one and all of these are due to Bursatti, on the following grounds:—They are all of the same nature, although varying in degree of development from simple bronze discoloration to an ulcer indubitably bursattic. There can be no doubt of this, after careful examination of the characters and progress of a number of such ulcers. The character of the ulcer when fully developed (notably the presence of kŭnkŭr) is diagnostic. They are constitutional, their development being intimately associated with the state of the weather; also they recur annually with the rains in certain horses; finally, they are most intractable, but disappear spontaneously when the cold weather sets in. There are several points for consideration in treatment. The cases are so numerous that they cannot all be kept from their duty. Poisonous local applications must not be used; powerful caustics also are inadmissible, as rendering the mouth very sore, and liable to excoriate the tongue. Thus our hands are tied very much. I generally touch them with nitrate of silver periodically, and keep the bit covered with some soft material, and the animal at work. For ordinary bur-

sattic wounds, caustic potash is one of the best applications: it forms a thick eschar, which in due time peels off, carrying much kŭnkŭr with it. Generally this suffices, and a healthy stimulus has been imparted to the ulcer which promotes scaling; but a second application may be necessary. *No treatment which fails to remove the kunkur is successful*, and recurrence depends on the fact that, whether by operation or caustic, we are seldom able to remove all the gritty particles, the smallest of which are the most deeply embedded. I find that the iodide of arsenicum ointment (1-6) is a useful application; it causes a large slough, and I hope to prove it beneficial in a much weaker form in cases affecting the coronet and sheath, where we cannot afford to lose much tissue. Professor Morton suggested its use. Bursatti ulcers on the sheath are a nuisance: they are most awkward to dress, on account of their inaccessibility; the parts are naturally dirty and exposed to friction, and the disease seems to be communicable from one part of the skin to the other by contiguity of structure. Although we hear so much of the "cure" of Bursatti, I have never known a thorough recovery. I have seen and sent out many cases patched-up, but with recurrence of special climatic conditions the disease has broken out afresh, generally in a more virulent form. Veterinary Surgeon D. C. Pallin has recently shown me a case of apparent cure, in which the kunkur is detectable as hard concretions beneath the skin of various parts of the body. Of course, Bursatti cicatrices must be looked for carefully in examination as to soundness of horses in India.

There are some little points of difference between the manifestations of disease in India and at home which require comment. Before I had been a month in the country I saw two cases described as "peculiar exfoliation of horn" and "hoof defective," respectively. They were the disease commonly known as CANKER, but with two points worthy of notice: firstly, the disease, with strict anatomical accuracy, had affected only those portions of hoof which consist of frog-horn, *i.e.*, the frog and the coronary band, the latter being especially well-marked and distinct; secondly, it being the hot weather, the parts, instead of discharging a high-smelling, grumous fluid, were all but dry, and the strings of the disintegrated horn were small and fairly hard. One horse belonged to native cavalry at Poona, the other to artillery at Secunderabad. I have had two cases in which deep-seated accumulations of pus in the foot have failed to manifest themselves in the usual way until after a very great lapse of time, and another in which separation of the whole horn from the sensitive sole was unrecognised until the animal had been cured some three months, and was being shod. Another effect of the dryness and hardness of the soil throughout a great part of the year, is the extreme prevalence of Ring-bone and Sand-crack. RING-BONES develop here most rapidly; they are especially frequent among the field battery as compared with horse artillery horses, and are, perhaps, the most fruitful source of unfitness for further service. When I first came here I was unprepared for so many cases of Ring-bone, but I soon recognised the actual state of affairs. Horses of *all* breeds are liable to this serious disease, but I look upon Australians as specially predisposed, probably from hereditary influence. It is wonderful how frequent Ring-bones are among young "walers" on importation. I would not have it supposed that I have fallen into the error of considering the naturally large pasterns of these animals as diseased: it is not so. I always, in dealing with the hocks and pasterns of young Australians, if the corresponding joints are alike, and the pasterns proportioned to the hocks and knees, and there is no impediment to action, pass the animals as "sound" in this respect. I believe the first horse-breeders in Australia could not afford to purchase sound English sires, so bought animals with "only a Ring-bone," the progeny of which we now receive either affected on arrival or liable to throw out Ring-

bones when put to even moderate work on our hard soil. We very soon learn to distinguish between that thickening of the skin which results from pressure and friction of the heel-rope shackle, and true Ring-bone. The subject of HEEL-ROPES requires a little consideration. We get experience of picketing in this country, compared with which that acquired at home becomes insignificant. We see injuries from heel-ropes rather frequently as a result of carelessness on the part of the line-guard. Sometimes horses draw their picket pegs, and injure themselves seriously. I have known one "draw" the heavy piece of granite with a ring in it which is preferably substituted for a peg, and so cause serious injury. It is a matter of sick-line routine to see that the lame leg be kept without a heel-rope. The following are some of the questions which are likely to crop up about heel-ropes :—

I. What kind of shackle do you prefer?

II. Ought the shackle to be fixed above or below the fetlock?

III. Are double heel-ropes required?

IV. Do injuries result from the use of heel-ropes?

At this station the old-fashioned leather loop shackle is in use. Its opening can be shortened to fit any pastern by lashing its thong around more or less frequently. The natives make a very simple and sensible shackle of rope, with a button at one end and a loop at the other; it also has a loop for attachment of the heel-rope. In one battery here a very neat pattern shackle has been used, consisting of leather in the main, with steel fastenings; but it was found in the rains that all these required to be shortened, because the leather part relaxed, and the metal caused sores of the skin outside and behind the lateral cartilages. This is not the place to enter at more length into the subject of shackles.

Custom generally leads to the shackle being placed below the fetlock, and this, no doubt, is the best method; firstly, because the parts there are better adapted to stand pressure; secondly, the shackle is less liable to slip from the pastern; thirdly, the pastern region contains several joints, and thus the restraint is less irksome than a strain on one unjointed part. Thus we have to argue from abuses of the shackle. When legitimately used it should not press on the limb nor strain it in any way, then it will cause the horse no inconvenience ordinarily, while restraining him sufficiently in emergency, and will be worn with no more inconvenience than a man experiences from a collar or a lady from a bracelet. But syces *will* bind on shackles too tightly, and *will* tie up horses "fore and aft," so as to restrain their liberty of movement. Sometimes the shackles, when not kept greased and pliable, cause nasty sores. I have a case in hand at present in which, to prevent the patient scraping his Bursatti-affected fore limbs together, I have to keep them apart by fastening each to a peg on its own side of the horse. The animal strains at the ropes used for this purpose in a perfect *furore* of irritation. I have had cases of strain of the hock and fetlock in consequence of the animal dragging at tight heel-ropes, and I have a suspicion that some hip cases which I have had under treatment were caused in this way. Double heel-ropes certainly are necessary only for habitual kickers.

With regard to HEAD-FASTENINGS, they are either the ordinary head-collar or a neck-strap. Occasionally we substitute a short heel-rope on one fore leg. For quiet horses, picketing on the "bush system," with a single rope on one fore leg, is the best and simplest plan. This method is well known in Australia, and advocated in Mr. Meyrick's work on "Prevention of Disease, and Stable Management in India;" it was specially recommended for military purposes by Veterinary Surgeon (First Class) E. T. Cheesman, long ago; I adopt it at my sick lines when horses have to stand in the open, and it answers well.

SAND-CRACKS a short time ago became very prevalent in our battery: they

are frequent here at all times, but especially during the hot weather. In this case the shoeing was very fair, not much heat used in application, and the feet well shortened. Careful inquiry led to the discovery that almost all the cases had occurred since a certain officer went on leave, and in his division of the battery. He used to have the feet dressed regularly with an oleaginous compound, and when he went away gave no instructions that the practice be continued. The feet lost their accustomed protection, and began to split. An allowance of castor oil from the line fund and daily application made matters all right again. Government supplies us out here with some useless implements called plastering-irons; they are convertible into firing-irons. I have recently had one made into a sand-crack firing instrument, which answers very well, and proves much smarter, cleaner, and more expeditious, also more under control, than the ordinary firing-iron used for this purpose. A friend of mine, with equal audacity from an official point of view, has converted an ordinary writing eraser into a useful neurotomy knife.

Mr. Sheather's recent excellent paper on "CONTRACTED FEET" has been read by me from the VETERINARY JOURNAL with the greatest interest. Feet grow very rapidly out here, and the effects of shoeing, good or bad, are very marked. When I first came out I saw a case of a horse affected with Navicular Disease, so I diagnosed. I prognosed accordingly. I found the animal with small, blocky feet, going on the toes, wired in at the heels, without any other cause of lameness perceptible. He had been shod by natives recently. Proper European shoeing gave my diagnosis the "lie direct" in six months' time. The feet became good and open, and the action sound. My case of Naviculartritis was *in nubibus*, but I had learnt a lesson of the effects of native shoeing! A certain number of NATIVE ARTIFICERS belong to each battery or regimental forge. They become very handy, expert, and useful under European supervision. They work with very simple tools and make the most of small means, as all natives can. They are Mohammedans. It is convenient for operations, when the hot iron is necessary, to have these men at hand. They bring a native bellows (or a pair) and a little charcoal, if necessary a small anvil. They make a fireplace by forming a small bank of wet clay around the nose of the bellows, put charcoal in front of it, blow for a minute the lighted charcoal, and have the iron ready in a very short time. The bellows is very simple, being a piece of skin narrowing to a nozzle at one end, and bound by two flat pieces of wood at the wide end. By special action of the hands, air is admitted at the wide end, and forced out in a remittent blast at the narrow one. It is curious to see these men, of fine physique, squatting about the forge at work, using toes and fingers equally. They relieve the European artificers of labour in turning shoes, and are very clever at minor pieces of workmanship. They make fairly good nails when properly taught and looked after. *Native-made nails* are small and light, narrow, with no marked neck, square shank, and the ground surface of the head elongated and flattened. This part fits into the continuous fullering used in the *native shoes*, which are characterized also by rough, unfinished heels, soft iron, bulging opposite each nail-hole. The nails are not driven high; they give very fair hold; but the shoes are almost always too short, so almost all feet which have been shod continuously by natives are shrunken, blocky, and contracted at the heels. *Navicular Disease and other foot lamenesses, except Ring-bone and Sand-crack, are rare.* THRUSH is only a disease of the rains. The dry and thirsty land in other seasons of the year keeps the frogs free from this disorder. CORNS also are very rare, although most horses go very fast here, especially those owned by natives. Indeed, NATIVE HORSEMANSHIP is a most interesting study. In the choice of an animal, apart from actual lameness, the various

disorders of limbs count in the minds of natives for little. Even obvious deformities are tolerated, often, indeed, unappreciated or unnoticed. At the same time colour and marks are much attended to, as being lucky or unlucky, according to shade or arrangement. The effect of these peculiar notions is that when a number of important natives are assembled horses of most peculiar colours will be seen—all sorts of piebalds and skewbalds, flea-bitten greys, party-coloured animals of most diverse kinds. Indeed, country-bred horses are often of most peculiar colours. The natives pay high prices for Arab, Australian, and English horses, also for Turcoman, Afghan, or Beluchi animals. Dealers with batches march annually all the way from the Trans-Indus regions to Hyderabad, where they obtain prices which amply pay them for trouble and risk. The natives' horses are trained very highly to extravagant paces, and at marches past the war-horses go past the saluting-post on two or three legs, or wheeling about in full charge in mimic combat. Thus, when a horse comes here for sale from the city of Hyderabad, although sent in perfect good faith of soundness and quietness, it may be found either very unsound or full of the most extravagant riding-school tricks—a marked contrast to the raw, untrained, bucking walers one sees out here. Generally the legs of these country-bred horses show signs of wear, fulness of the hocks especially; they have a certain admixture of Arab blood, which has long been utilized for improvement of horses in the Nizam's dominions, and they are distinguishable by their plethoric and fat condition, sleek but greasy and dirty coat, want of attention to the minutiæ of grooming, foul mouths, yellow membranes, native shoes, and a heavy, sleepy look in some cases, the result of drugging with "*bhang*," if they have a tendency to vice. The native horse-dealers are shrewd and up to all sorts of tricks. On festive occasions the native stains the legs and tail of his horse with dye (yenney), and cuts the tail fantastically. He puts on most gorgeous trappings, always uses a standing martingale and double crupper, but he forgets to have the bit and stirrups clean. The khogeer, or native saddle, bits, etc., are described in our *Quarterly Journal of Veterinary Science in India*, for July, 1883. The Australian horses are often very much knocked up after their voyage, during which they sometimes experience great hardships; they are landed raw, and examination of them in this state requires some tact and experience. The brand-marks of dealer and breeder are of importance. Sometimes they are in most inconvenient positions, such as on the shoulder, where they are liable to constant abrasion by the trace links, if used for artillery work, or in those positions where horses are, by regulation, branded when cast, when they may lead to unjust suspicion of the animal having been cast for vice or rejected for some other reason. These marks, too, can guide the well-informed as to the strain and qualities of the horse, to an extent, and the brands of good breeders are much appreciated.

I have had a few cases of SCROTAL HERNIA since my arrival. It is always necessary to look for this in uncastrated animals when they suffer from Colic. The genital organs of the male become very relaxed by the heat of the weather, and DISEASE OF THE TESTIS, as Œdema and Inflammation, sometimes occurs.

We see a little STRANGLES here. It is frequent, severe, and of an epizoötic type at a breeding establishment some thirty miles from here. This disease seems more virulent in India than at home. I have a note somewhere, but not to hand now, of inoculation having been tried with such serious results as to lead to suppression of the records of experimentation. This ought to at once settle the question, Is Strangles contagious?

I have not any intention of entering now into details of exceptional occurrences, such as how we got ready for Egypt in the cold weather of

1882, or how an order came out regulating the length of tails of artillery horses, which, if carried out, would necessitate docking about nine-tenths of the battery; but trust the rambling paper I have written may recall, to the minds of some, days spent in the dry, scorching cantonment of Secunderabad, and may call forth from them approval or otherwise of my views. I trust, too, that plain matters of every-day Indian practice will interest those who have never yet served in British India, but anticipate being called upon to do so in their turn. Let it be remembered that I give an individual experience, and so am fully aware that much of what I have written may be questioned, and much added to it.

Proceedings of Veterinary Medical Societies, &c.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held on Friday, November 30th, 1883, at the "County Hotel," Newcastle-on-Tyne, the President, D. M'Gregor, Esq., in the chair.

Present: Messrs. H. Hunter, Elphick, Mitchell, A. Hunter, and Smart, Newcastle-on-Tyne; Dudgeon, Sunderland; Nisbet, Fence Houses; and Mulvey, Bishop Auckland. Messrs. Wilkinson, Newcastle, and Stevenson, Sunderland, were present as visitors.

Letters of apology were read from several members, regretting their inability to attend the meeting.

The usual routine business having been disposed of, the officers for the ensuing year were elected as follows:—D. M'Gregor, Esq., President; G. Elphick, Esq., and J. Peele, Esq., Vice-Presidents; W. W. Smart, Treasurer and Secretary; C. Stephenson, Esq., and A. Hunter, Esq., Auditors.

The attention of the gentlemen present was then drawn to the fact that after January 1st, 1884, only Fellows of the Royal College of Veterinary Surgeons would be qualified to serve as members of Council.

This gave rise to a lengthened discussion, in which several of the members expressed their regret at such a regulation, and stated that in their opinion it would disqualify many of the ablest men in the profession from being on the Council of the Royal College of Veterinary Surgeons.

It was proposed by Mr. NISBET, and seconded by Mr. DUDGEON, that Professors McCall, Glasgow; Robertson, London; and Williams, Edinburgh; be elected Honorary Associates of this Association at its next meeting.

Mr. H. HUNTER then read the following paper:—

Mr. President, Vice-President, and Gentlemen,—As our worthy secretary was somewhat at a loss for a subject for discussion at our present meeting, I promised to introduce the operations of frog setoning and neurotomy, not that I have anything new to advance in regard to them, but from a desire that these two most important, and in many instances beneficial, operations should be more frequently performed, and if possible before the various diseases for which they are applied have become so far advanced that no remedy can possibly relieve them, as this has no doubt been the cause of bringing these operations somewhat into disrepute.

Frog Setoning.

I think that in any case where you have lameness in the foot with tenderness of the frog, or around the centre of the sole, indicating either the first or

inflammatory stage of navicular disease, or a bruised condition of the sensitive sole or frog, and if the lameness is not removed after the horny sole and frog have been well thinned, and the foot or feet have been well fomented and poulticed and bled, either from the toe or coronary veins, and if the animal is a valuable one, it may be desirable to blister round the coronets and give a month's run at grass. You must now introduce the frog seton, and in many cases you will get a favourable result; in some cases of lameness resulting from picking up a nail, especially when situated at the posterior part of the foot, I have seen good recoveries from the application of a seton. I also think that in any obscure foot lameness, the operation is likely to do good and should be tried.

Before operating, the sole and frog must be thoroughly well thinned, and the animal cast. At one time, if the off foot was to be operated on, I used to do it standing, but I always cast them now, as I think it is much safer both to the operator and the animal himself, as if he struggles much there is a chance of injury to one or the other. The best mode of securing them is to cast in the ordinary way, the foot to be operated on being uppermost, remove the hobble and place one on above the fetlock sufficiently tight to prevent it slipping over the joint, then place a sack filled with straw between the two fore legs, and draw the leg down firmly on to the sack by passing the chain of the hobbles through the ring of that fixed above the fetlock, and passing it below the rest of the chain or through one of the other rings; by this means you have the foot held firmly, and you are more likely to get the seton into the position you want it, and this is most important, as if you do not get it sufficiently deep you will do no good. I always introduce it from the top, midway between the pit of the heel and the prominent bulbous part of the frog, to about the anterior third of the frog; I think this is better and safer than from below upwards. I use the ordinary flat curved needle, with coarse tape, which I leave double and tie sufficiently long to be moved freely. As soon as the hæmorrhage has ceased, blister well round the coronets and at the back of heel, also smear the seton well with it, and in a day or two dress twice a day with oil and turpentine dressing, and if the suppuration is not sufficient, apply a second blister in about a week or ten days. I usually allow the seton to remain in about three weeks; after removing it syringe for a few days with the dressing, and when the orifice is closed apply a little white lotion until the parts are hardened, and then put on a good firm leather sole with tar stopping. In conclusion, I may say that I have never seen any ill results from the operation, but on the contrary many good recoveries. I think, as a rule, the operation should be performed within three or four months of the lameness arising.

The operation of neurotomy is somewhat allied to that of frog-setoning, although it has a much wider application, and is a more drastic remedy. I have often been asked, "Is not this a very cruel operation?" To which I reply, "No, it is the most humane operation I know of," and instance the operation of drawing a tooth to the constant agony of toothache. As a rule, the animal when brought to you for this operation is comparatively useless, and you need, therefore, have no hesitation in advising it to be done, as if successful you get a great deal of credit, and if not, and the animal should break down, the loss is not great to the owner, and the animal is destroyed and put out of his misery. The first consideration before undertaking the operation is to examine the foot very carefully and determine the nature of the disease, and see that there is no suppuration going on either from pricking, bruises to the sole, seedy toe, etc., and also that the hoof is sufficiently strong to bear the wear and tear of the work he will be called upon to perform, and to see that there is no other cause of lameness higher up the limb, as in one or two instances I have seen failure result from this cause; and in

one or two cases I have known the feeling of the foot only partially destroyed, although I feel quite sure that the whole of the nerve had been divided at the seat of the operation. This I attributed to some stray branches of nerve having been given off higher up the leg, and conveying feeling to the anterior part of the foot. Of the two operations, the high and the low, I always prefer the high, as more certain to give relief. In one instance an animal was brought to us on account of lameness of the near fore foot, and after being unnerved on that leg, he was found to be lame of the other, and on examination he was seen to have been operated on by the low operation, and it was necessary to operate again higher up to complete his soundness.

The principal diseases for which this operation is performed are navicular disease, sidebones, ringbones, and contracted feet, in all of which we have had considerable success. In many cases the animals continued to work satisfactorily for many years, some of them being sold for high prices, the fact of the operation having been performed escaping notice. The mode I adopt in performing this operation is, after clipping off the hair, to make the incisions through the skin by the bistoury scissors before casting, the leg being held up by an assistant taking hold of the knee and allowing the leg to hang pendulous; you are thus enabled to gather up the skin and make a good-sized incision, taking care to get your opening immediately over the nerve, along the anterior margin of the tendon. This is a most important part of the operation, as if your openings are well placed, there is generally little difficulty in dissecting out the nerve. The orifice on the outside should be a little lower than on the inside, so that you get below the branch which crosses obliquely over the tendons from the inside. After your incisions are made place the leg in cold water for half an hour or more, then cast, and if necessary enlarge the orifices in the skin with a probe-pointed bistoury; apply your hooks to hold back the skin. I generally have a few prepared ready in case you lose one during the operation; they consist of ordinary dress hooks opened a little to fit the skin, and attached together with a piece of elastic. Then dissect back the fascia, and when the nerve is exposed, pass your curved needle and thread underneath and tie loosely around it, and you will be enabled to gently raise it and separate it from the parts below; pass a sharp-pointed curved knife under it and divide at the upper end, and then dissect out about three-quarters of an inch of the nerve and close the orifice with one stitch, and treat as a common wound. If both legs are to be operated on, commence with the outer side of the upper leg, then release the under one and draw it forward with a rope placed round the pasterns, and raise it up by placing a bag filled with hay under it; and after you have completed the operation on that side, refix the leg in the hobble, turn the animal over, and repeat on opposite side. In some cases you may have troublesome hæmorrhage, and in rare instances it may be necessary to tie the vessel, or bandage tightly from the foot to above the knee, and apply the tourniquet. I have only had a small percentage of bad results from the operation, the most frequent being rupture of the tendons, which very often does not occur until several months after the operation. In one instance I have had sloughing of the hoof, and in two instances open bursæ of the fetlock.

Some authorities assert that after a few months the nerves unite, and feeling is restored. I cannot agree with that opinion, as I have known animals continue sound for years after the operation, when, from the condition of the diseased parts, they must have inevitably become lame if feeling had been restored. I have also known cases of injury from threads, etc., years after the operation, without pain being evinced.

With these few imperfect remarks I now conclude, and hope the members

will freely express their views, and that we may have a profitable discussion.

A most interesting discussion ensued, in which all present joined, some of the members stating that they had seen many successful cases of frog-setoning, and strongly urging its trial before resorting to the operation of neurotomy. Several of the gentlemen present had performed the latter operation, but with varying success, and they found the chief drawbacks to the operation were the frequent sloughing of the hoofs, and the necessity for extraordinary care in shoeing, but were of opinion that it might be more frequently resorted to for the removal of lameness caused by sidebones in draught horses.

Votes of thanks to Mr. Hunter, for his interesting paper, and to the President for his kindness in occupying the chair, brought the meeting to a close. WILLIAM W. SMART, *Hon. Sec.*

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE seventy-seventh quarterly meeting of the above Association was held in the Medical Institute, Hope Street, Liverpool, on Friday, the 9th November last; the President, R. S. Reynolds, Esq., in the chair. There were present Messrs. Moore, Elam, P. Taylor, Morgan, Faulkner, Greaves, Woods, Ross, Davie, Locke, W. A. Taylor, A. Leather, Whittle, Kitchen, Barrow, and the Secretary. Letters of apology were read from Professors Williams and Lewis, Messrs. Hopkins, Wilson, Welsby, and Roberts.

Mr. ELAM proposed, and Mr. MOORE seconded, that this Association give a donation of ten pounds sterling to the Royal College of Veterinary Surgeons' Building Fund. Carried unanimously.

Mr. WOODS proposed, and Mr. WHITTLE seconded, that Mr. Reynolds be re-elected President for the ensuing year. Carried.

Mr. ELAM proposed, and Mr. KITCHEN seconded, that the Secretary be re-elected for the ensuing year. Carried.

Mr. ELAM proposed, and the SECRETARY seconded, that Mr. Morgan be re-elected Treasurer. Carried.

Much sympathy was expressed by the members present in reference to the death of Mr. Tom Taylor, and it was proposed by the PRESIDENT, and seconded by Mr. MORGAN, that a letter of sincere condolence be engrossed on vellum and forwarded to Miss Edith Taylor. Carried.

The resumed discussions on the treatment of ringbone and sidebone, etc., as also the docking of horses (adjourned from the August meeting), were introduced, the former by Mr. W. A. Taylor, the latter by Mr. P. Taylor. The latter subject created a very animated discussion, in which nearly every one present took part. The following motion was then agreed to:—"That this Association see, with great regret, that the President of the R.C.V.S. and ex-Professor Pritchard are using their high positions to damage veterinary surgeons in the lawful discharge of what they consider their professional duty, and that this Association considers the docking of horses by qualified veterinary surgeons a necessary and justifiable operation."

Mr. GREAVES proposed, and Mr. FAULKNER seconded, that the Secretary be instructed to write a letter of condolence to Mr. Morgan Rees. Carried.

Mr. MOORE proposed, and Mr. MORGAN seconded, that a donation of five pounds be given to the Children's Infirmary. Carried.

A vote of thanks to the retiring office-bearers, and Messrs. P. Taylor and W. A. Taylor then terminated the meeting. ALEXR. BAIN, *Hon. Sec.*

ROYAL COUNTIES VETERINARY MEDICAL SOCIETY.

A MEETING of members of the veterinary profession was held in the Great Western Hotel, Reading, on the 16th November last, when it was unanimously resolved to form a Veterinary Medical Association for the counties of Berks, Bucks, Oxon, Wilts, Hants, Somerset, and other adjoining counties, and that it be known as the Royal Counties Veterinary Medical Association.

The rules of several veterinary medical associations were submitted to the meeting, from which, with slight alterations, a code was drawn up and adopted.

The association is formed for members of the profession, students attending the recognised colleges, and pupils of veterinary surgeons.

The ordinary meetings are to be held twice a year, each person on becoming a member to pay an entrance-fee of 10s. 6d., and an annual subscription of 10s. 6d.

The following office-bearers were elected for the year, viz. :—President—Mr. G. A. Lepper, Aylesbury ; Vice-Presidents—Mr. Flannagan, Reading, and Mr. Drew, Abingdon ; Treasurer—Mr. Walker, Oxford ; Secretary—Mr. Kidd, Hungerford.

The first meeting will be held in the Great Western Hotel, Reading, on Friday, 29th February, at 2.30 p.m. The members will dine together at the close of the meeting.

Gentlemen, by making application to the Secretary not later than the 29th of February next, and conforming to the rules of the Association, will be admitted members without any formal election.

H. KIDD, *Hon. Secretary.*

THE BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE first meeting of this recently-formed Association was held on January 4th, in the Bush Hotel, Carlisle, when Professor Walley, Principal of the Dick Veterinary College, Edinburgh, read a paper on "Strangles in Horses." The chair was taken by Mr. Carlisle, V.S., president of the Association, and there was a fair gathering of members, including Mr. Bell, Carlisle ; Mr. James Bell, Carlisle ; Mr. Potts, V.S., Wigton ; Mr. J. Soulsby, Workington ; Mr. Coates, Brampton ; Mr. J. Dawson, Carlisle ; Mr. H. Thompson, Aspatria ; Mr. J. Carruthers, Wigton ; Mr. Thomas Greaves, Manchester ; Mr. J. Donald, Wigton ; Mr. Joseph Pears, Penrith ; Mr. John Little, Abbey Town ; Mr. G. B. Harrison, Kirkoswald ; Mr. Faulder, Cockermouth ; Mr. Robson, Penrith. The Secretary (Mr. Donald) having read the minutes of the meeting in November, at which the Association was established, laid before the meeting a number of letters of apology from veterinary surgeons who signified their willingness to become members of the Society, their names being as follows :—Mr. J. F. Thompson, Aspatria ; Mr. Mackintosh, Dumfries ; Mr. Chalmers, Longtown ; Mr. J. Howe, Keswick ; Mr. B. Hoadley, Westgate ; Mr. Fisher, Whitehaven ; Mr. Henry Pears, Langholm ; Mr. J. Young, Cockermouth ; Mr. Soulsby, Whitehaven ; Mr. Tait, Annan ; Mr. Sommers, Allendale ; Mr. Tallentire, Skelton ; Mr. Watson, Ireby ; Mr. Roberts, Kendal ; and Mr. Walker, Bradford.—On the motion of Mr. BELL, seconded by Mr. PEARS, Penrith, it was agreed that the gentlemen whose names had just been read be accepted as members. It was also decided, on the motion of Mr. BELL, that Professor Walley and Mr. Greaves be elected honorary members ; and for this compliment Professor WALLEY and Mr. GREAVES returned thanks.

The PRESIDENT, in opening the proceedings, said it was with great pleasure, yet with some degree of reluctance, that he entered upon the office of President of the young society ; and for any shortcoming on his part he must crave their indulgence. It was not his intention at this meeting to occupy much of their time. He should make way for Professor Walley and other friends who had been kind enough to honour them with their company. He thought he must attribute his election as president to the fact of his being perhaps the oldest veterinary in the county. For many years he stood alone in the county ; but now he is glad to say he was attended in the field by many other and energetic members of their noble profession, some of whom he had the honour to say had been his pupils. (Cheers.) They had named their Society—and he thought very properly so—the Border Counties Veterinary Medical Society ; and he thought they might say that Professor Walley was its godfather. He called attention to the subjects which were to be discussed at the forthcoming meeting of the National Veterinary Association to be held at the Victoria University in Manchester in the month of July next, viz., "Our Food Supply," introduced by Professor McCall ; "Influenza," by Professor Pritchard : "Foot-and-Mouth Complaint," by Professor Williams ; and "Cruelty to Animals," by Mr. Briggs. He suggested that when Mr. Briggs gave his lecture on "Cruelty to Animals," the opportunity would be taken by Mr. Greaves, as well as others who might be present, to say a few words on that vexed question, the docking of horses, about which so much had been said of late. He was of opinion that that operation should still be allowed, but solely by professional men, and that the use of the hot iron should be discontinued. (Cheers.) The President then called upon Professor Walley to read his paper on "Strangles in Horses," which Professor Walley described as a purely equine disease, which had been known in this country and many other countries from time immemorial.

The members dined at the hotel after meeting.

ONTARIO VETERINARY COLLEGE, TORONTO, CANADA.

December Examinations.—Graduates.

Frank Ardary, Jun.	... ...	Pittsburgh, Penn., U.S.
Wm. Drinkwater ...	... ...	Port Stanley, Ont.
David McMaster ...	... ...	Toronto, Ont.
Robert Beattie ...	... ...	Lincolnsville, Ont.
Thomas B. Cook ...	... ...	Glandford, Ont.
S. D. McClure ..	... ...	Brampton, Ont.
W. W. Thorburn ..	... ...	Holt, Michigan, U.S.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons held on the 4th and 5th January, 1884, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. T. Williams	... ...	St. Clear's, Carmarthenshire.
„ J. Mark ...	... ...	Newry.
„ A. J. Mullen	... ...	North Walsham.
„ Arthur Gill...	... ...	Kew.
„ Wm. Langdon	... ...	Camelford, Cornwall.

Mr. Sydney Jas. Blanchard	...	Southampton.
„ Harry J. Axe	... ...	Doncaster.
„ Tom H. Higgott	... ...	Bakewell.
„ William S. Reid	... ...	Fitzroy Square, W.
„ William D. Snowball	...	Huntly, N.B.
„ Charles F. H. Skelton	...	Leyton, Essex.

Eleven passed ; ten rejected.

The following students passed their "Second Examination" on the 7th and 8th January, 1884 :—

Mr. W. E. W. Baldwin.	*Mr. F. T. Harvey.
„ A. Jones.	„ F. W. Leigh.
„ *G. E. Fryer.	„ E. W. M. Haydon.
„ F. E. Meek.	„ J. Farmer.

Eight passed ; five rejected.

The following students passed their "First Examination" on the 9th and 10th January, 1884 :—

Mr. F. Halliday.	*Mr. J. R. Green.
„ T. S. Newbury.	„ †R. W. Dixon.
„ W. J. Hatton.	„ H. Gray.
„ A. H. Oliver.	„ A. P. Burgon.
„ E. W. Larnder.	„ L. Barrett.

Ten passed ; six rejected.

* Marked thus passed with "Great Credit."
† Marked thus passed with "Very Great Credit."

Jurisprudence.

CURIOUS DISPUTE.

(*From our Correspondent.*)

A CASE of some interest to veterinary surgeons was heard before Judge Turner at the York County Court, recently, when Mr. George Hardy, V.S., of York, sued Mr. Charles Fleetwood, V.S., of the same city, for the recovery of the sum of 19s. 6d. for services rendered and medicine supplied. In his evidence, the plaintiff said his services to the defendant were rendered between the 18th and the 25th October, 1880. He had sent in his account, and had also put the matter into the hands of a debt collector, but he had been unable to get anything from Mr. Fleetwood. The debt collector had, in fact, reported that he was an "expert."—His Honour : An expert ; what does he mean ?—Plaintiff : An expert in law.—In cross-examination by the defendant, Mr. Hardy said he did not know that he (defendant) was a member of the Royal College of Veterinary Surgeons ; he had heard so, but did not believe it.—The defendant said he might ascertain the information on looking at the journal.—Plaintiff : If you are a member, why did you send for me ?—Defendant : I didn't.—Plaintiff proceeded to state that he attended three of the defendant's horses five times, and supplied a dozen cough balls, for which he had charged 19s. 6d., the fee he would ordinarily have charged for one horse. He had not another case in the same yard as that in which the defendant's horses were stabled, nor did he look in at them incidentally.

The defendant's story was that about the time named he had three horses stabled in the yard. The plaintiff came to the yard for a copy of the journal, and saw a mare that had injured herself, and had some bandages on. She had been severely cut on one of her legs, and he (defendant) had been attending her for a fortnight previously. The plaintiff saw her twice in two months. He (defendant) at length turned her out, but ulceration set in on the joint, and he then sent her to the kennels. He had told the plaintiff that he might have the joint in order to make a *post-mortem* examination of it. The plaintiff was never engaged by him to attend the animal, and on that ground he refused to pay his account.—His Honour said he believed the plaintiff's story, and gave a verdict in his favour for the full amount claimed, with costs.

Army Veterinary Department.

Gazette, January 4th, 1884.

Veterinary Surgeon John Robert Beech to be seconded for service with the Egyptian army; dated January 12th, 1884.

John Finlayson, gent., to be veterinary surgeon on probation; dated January 12th, 1884.

Obituary.

THE death is announced, on January 4th, of Thomas Watson Talbot, M.R.C.V.S., of Maida Vale, London, aged 54 years, who graduated in 1850; also of William Young, M.R.C.V.S., Southwell, Notts, a graduate of 1831.

Italy has sustained a heavy loss by the demise, at the age of 64, of the most distinguished veterinarian, and one of the most advanced scientists in the realm of biology and pathology, she has perhaps ever produced, Count G. B. Ercolani, professor at the University of Bologna, and director of the veterinary school attached thereto; while the scientific world has every reason to regret the calamity. There is scarcely a department in the two branches of science just mentioned to which he did not contribute largely and beneficially, and he was in correspondence on special subjects with nearly all the *savants* who dealt with them. Of the 136 contributions to anatomy, pathology, physiology, biology, and other subjects, which he contributed from 1842 to 1883, the majority are of great value, notably those on the comparative anatomy of the placenta, the urinary bladder, and umbilical artery, studies on Cow-pox, Sheep-pox, Syphilis, Tuberculosis, and Entozoa; while his "Richerche Storico-analitiche Sugli Scrittori di Veterinaria" is of permanent value.

Ercolani was a strong politician as well as a scientist of a high order. His political career commenced amid the momentous events which agitated Italy in 1849, and was continued by his election three times as deputy to the Italian Parliament since the unification of that kingdom, and, faithful to his convictions, he at one time suffered exile rather than violate them. He was a member of very many scientific societies and corporations, and was some time ago elected an honorary associate of the Royal College of Veterinary Surgeons.

Notes and News.

THE ANTHRAX BACILLUS.—In a report to the Paris Academy of Sciences, the French physiologists, MM. Chambrelen and Malassez, announce that they have at length succeeded in discovering, in the milk of cows affected with Splenic Fever, the bacillus of that disease. They have been successful in their experiments in the reproduction of this micro-organism, and in inoculating animals with it. The number of bacilli in the milk of affected animals is always much smaller than that in the blood, and may even be reduced to zero.

BERLIN VETERINARY SCHOOL.—The Imperial Veterinary School at Berlin may be now said to be the model for such schools in any country, owing to the great improvements that have been made from time to time. During the past season it has been attended by no less than 247 matriculated students, the largest attendance during the century of its existence. The main building, with its three lecture halls, its large well-stocked library, and numerous lodgings for officials, etc., contains also an extensive anatomical department, with very valuable collections. The pathologico-physiological institute connected with the establishment is situated in one of the new wings. The dog hospital, the horse hospital, the operating-rooms, riding school, smithy, etc., are considered the best of their kind. In a capital range of cow byres are to be found specimens of the favourite breeds of all countries, and these are kept partly for instruction and partly for the uses of the dairy. The horse hospital is capable of accommodating 100 sick horses, and it may interest our readers to know that in 1882 no fewer than 2,241 animals passed through a course of treatment here; 600 more being examined and dismissed; and 7,085 sent on to the Polyclinic. In the dog hospital 1,200 patients were treated during the same period.

SCARLET FEVER IN HORSES.—Dr. John C. Peters, of New York, lecturing recently at the Columbia Veterinary College in that city, stated that he had discovered the existence of Scarlet Fever in horses, at the same time adducing many facts in support of his theory. Grooms, he said, rarely contract the Fever, because they almost invariably suffered from it in a mild form when young. Dr. Peters expressed it as his opinion, therefore, that the day would come when equine virus would be used for the inoculation of human subjects as an antidote to that disease.

MORPHIA *v.* DOG POISON.—An American M.D., writing to a trans-Atlantic contemporary, complains bitterly of dog-poisoners, but says he has saved many of his dogs by hypodermic injections of morphia. He counsels every sportsman to keep a hypodermic syringe in his pocket, or close by, and with it two or three papers, each containing two grains of sulphate of morphia. When rigid back and intermittent spasms indicate disaster, without delay dissolve the contents of a package in a teaspoon with a little water projected from the syringe, which can be warmed to dissolving-point over a lamp or lighted match. Suck it up through the nozzle again, and insert the same through the skin into the loose tissue beneath it, raising up a fold for the purpose from the ribs or shoulder. If the dog is not very far gone, the entire contents of the stomach are instantly vomited, thus leaving only the amount of poison already absorbed to contend with; and the medicine, besides its first emetic effect, is one of the best antidotes, and will produce its full effect; whereas, if introduced by the stomach, would probably remain inert, owing to the general paralysis from the strychnine, this being almost the only poison employed, and the only article of access to the public that will have any certain action on dog, wolf, or others of the canine family.

HORSES IN RUSSIA.—In the VETERINARY JOURNAL for October last, it was stated that in the Kirghiz Steppes alone, it is estimated that Russia

possesses 4,000,000 riding horses, which appear to be very suitable for military service. The *Invalide Russe* now gives a summary of the results of a census of horses, which was for the first time carried out during the last autumn throughout the fifty-eight governments of European Russia. The object of this equine census was to ascertain what available means of transport of this character might be reckoned upon in the event of mobilisation. The total number of horses in the whole of the districts is 19,675,193, of which number 14,835,051 are stated to be fit for military service. Both the total number of horses and the large proportion (almost three-fourths) which are judged to be fit for transport, etc., work, have been an agreeable surprise to the authorities. The greatest number of horses is found in the governments lying around the middle and lower Volga, next in those watered by the tributaries of the Volga and by the Don, and then in the Lithuanian provinces.

VETERINARY HONOURS.—It gives us great pleasure to announce that our esteemed colleague, Herr Lydtin, Veterinary Adviser to the Government of the Grand Duchy of Baden-Baden, has had conferred upon him, by the Senate of the Faculty of Medicine, of Fribourg, the degree of Doctor in Medicine, *Honoris Causâ*. This distinction Dr. Lydtin has well earned, and we hope he may long enjoy it and the other honours awarded him.

Dr. Willems, principal physician to the Civil Hospital at Hasselt, Holland, has received from the Paris Academy of Medicine the prize of four thousand francs founded by Baron Barbier, for his labours in introducing and perfecting inoculation for Contagious Pleuro-pneumonia.

M. J. B. Hugues, first-class veterinary surgeon in the Belgian Army, and a very distinguished veterinarian, has been nominated a Chevalier of the Order of Leopold.

At the meeting of the Central Veterinary Medical Society of Paris, on December 27th, Dr. Fleming, Principal Veterinary Surgeon to the British Army, was unanimously elected a Foreign Associate. He was previously a corresponding member of that society.

EMPIRICISM AND POTTERY.—In 1720, during one of his journeys to London, the horse Astbury rode became affected with a disorder in one of its eyes; he therefore, upon arriving at Banbury, consulted the ostler of the inn at which he stayed. The man, well skilled in simple remedies, fetched a nodule of the flint common in the neighbourhood, burned it to a red heat in the fire of the room in which the traveller sat, and after plunging it into water, reduced it easily into a fine powder. A portion of this he blew into the horse's eyes, to their immediate relief and present cure. Astbury watched this process; and, being attracted by the whiteness of the calcined flint, and the easy method by which it had been reduced to powder, it occurred to him, by one of those happy inferences which, empirical as they are, have been so fruitful of results in relation to scientific advance, that the same substance might be found useful as a material in pottery. Willing to try the experiment, he had some flints collected and forwarded by waggon to Shelton, where upon his return they were fired in a kiln after the ware was baked, and then pulverised in a mortar. This powder he mixed with pipe-clay and water, and tried it as a wash for hollow ware. The result exceeded his expectations: he eventually introduced calcined flint into the body of his white ware, with the best possible effect, both as regarded a larger amount of vitrification and a purer colour.—*Meteyard's "Life of Wedgwood."*

OCULAR FILARIA IN CEYLON.—Within a short distance of Wahakotta lived a celebrated Kandian oculist, whom I afterwards employed to cure a pony of a disease which in Ceylon is common to cattle and horses, but never attacks human beings; it is a worm that is somehow received into the aqueous humour of the eye; this it first distends, then dims its colour, and

eventually destroys vision. The applications which this practitioner used were, I believe, all preparations or portions of vegetables, and seemed to give great pain to the horse; but the cure was complete, the insect was destroyed, and the eye eventually recovered its transparency.—*Forbes'* "*Eleven Years in Ceylon*," *Vol. i., p.* 362.

FOOT-AND-MOUTH DISEASE.—An inhabitant of Jerusalem writes to the *Times*, under date of December 13th, that in a great many villages of Southern Palestine this disease is raging among the cattle. The disease had never been known in that part of the world, and the owners of cattle, knowing no remedy for it, simply look on, in true Mahomedan fashion, waiting upon Providence. The writer notes that no cattle have been introduced into Palestine—a fact which may throw some light, he thinks, upon the way in which this disease is generated. But if no cattle have been introduced, it is evident the contagion has.

EPIZOOTY AMONG CATS.—The Government of Bombay has published a long memorandum on the plague among cats, which appeared at Ahmednuggar two years ago, and at Siroor last June. The Government seems to think that the plague may have some connection with the Cholera, and invites opinions on the subject.

Correspondence, etc.

AMPUTATING HORSES' TAILS.

DEAR SIR,—"Docking" of horses' tails is in many cases beneficial and positively necessary.

The operation, when conducted in a properly surgical manner, inflicts pain which can be but of a moment's duration.

Is the animal to be for ever a nuisance to its owner merely because he shrinks from causing him pain for an instant?

The stump is, in most cases, tender for some time after the operation, but with proper care this causes no trouble.

Compare an animal with a long dock and tail and mane, and long coat and unshod feet, with another having been docked, and mane pulled and clipped, and neatly shod.

No one can doubt that the R.S.P.C.A. are doing, and have done, real good work, but in this case they are over-stepping the mark.

Circumcision as practised in the East upon man is painful but necessary.

Some say that in docking we are acting "against the provisions of nature." I maintain that in a state of nature the operation would be unnecessary; but placed as the horse is in an artificial condition, we must treat him artificially.

No one would be more averse to inflict needless pain upon any animal, especially a horse, than myself; but I should expect to be called effeminate if I opposed amputation of the tail; and surely a man can have no worse name than that!—I remain, yours respectfully,

Ipswich, *Dec. 17th.* ROBERT J. DAWSON, M.R.C.V.S.

STUDENTS AND PRACTITIONERS.

SIR,—In your issue of December there appears an article written by T. Carnochan, M.R.C.V.S., Kirkcudbright, on "Novel Treatment of Laminitis," which is evidently aimed at a recent communication by Mr. McGillivray, M.R.C.V.S., Banff. At the present time so much is said and written about

the integrity and honour of the profession, that I feel compelled to inform my fellow-students that Mr. Carnochan is *not* a member of the Royal College of Veterinary Surgeons, and from the nature of his letter, does not seem likely to become one within the prescribed period. That Mr. Carnochan is a pupil of, or perhaps assistant to, Mr. Campbell, Kirkcudbright, is evident, and that, no doubt, accounts for the extraordinary nature of his communication. The employment of hypodermic injections may not be generally practised, but if Mr. Carnochan is to be taken as a guide, that form of administration would be better let alone. The dose of Inject. morph. hypoderm. quoted as a large dose, say twenty or twenty-five minims, is not calculated to affect a horse either one way or another. Five grains of morphia, hypodermically administered in painful diseases, seldom produce any appreciable effect, and how twenty-five minims Inject. morph. hypoderm. (presumably containing two grains) could modify the progress or symptoms in a case of acute Laminitis is one of those things "no fellow can understand." As Mr. Campbell seems to be the responsible individual in the case cited, perhaps he will be kind enough to state what his object was in administering the medicine mentioned; and at the same time he might throw the sage's mantle over his protégé Carnochan, and explain how he diagnosed Rheumatic Inflammation of the Meninges of the Brain, which soon rendered the animal *comatose*, and caused it to die *without a struggle*. At one time I was a supporter of the pupilage clause, but my views on that subject are now sadly shaken. Fortunately, I think, the enactment of the clause was lost, as this letter of Mr. Carnochan's shows conclusively that there are some practitioners totally unfit to prepare pupils for the profession.—I am, sir, yours, etc.,

A STUDENT.

APPOINTMENT OF A VETERINARY INSPECTOR BY THE TOWN COUNCIL OF HAMILTON.

SIR,—In the month of December, 1883, in the course of public business, and also of public utility, it became incumbent upon the above council to appoint a veterinary inspector for the burgh. Two candidates applied. The one a thoroughly-trained practitioner, with Royal diploma and having had several years' experience in the district; a man of strictly sober habits and stainless character, also bearing the best testimonials from local gentlemen and the College officials. The other, a blacksmith, with no professional training whatever, and, therefore, with no real scientific qualification for the discharge of the duties of the office. From one point of view, it looks as if the town council wished to cast a slur upon the professionally-trained veterinary surgeon. They could hardly have realised the critical difficulties and special scientific knowledge that is often required in dealing with the various diseases of cattle. These diseases are so varied, that none but a properly-trained doctor can efficiently treat them. The fact that many diseases are readily transmitted from the animal to man, and the vast influence that food has on health, are considerations which go to show the importance of having professionally-qualified men as veterinary inspectors. But for some reason or other these considerations have been set aside in this appointment, and the whole profession of veterinary surgery would seem to have been thus slighted. It looks like a complete denial by the majority in the council of the value of professional training and scientific knowledge in the treating the diseases of animals. If this be so in this case, then the same line of action would apply to medical men. The council clearly prefer untrained talent and incompetent professional knowledge to men thoroughly trained and competent. This is quackery with a vengeance. Of course, the council was acting within legal rights. But the legal rights in the case are only

technical. They are not based upon training and professional efficiency, but merely on the fact of being an "Existing Practitioner." But that does not mean a real qualification. It is simply an exemption from the penalty of the Act of Parliament. I have the high authority and testimony of Professor Fleming, President of the Royal College of Veterinary Surgeons, for the statement, that the registration of "Existing Practitioners" implies nothing more than exemption from the penal operation of the Act. The persons so registered have no legal qualification, and are neither better nor worse than they were before registration. The Royal College of Veterinary Surgeons does not, cannot, in any way acknowledge them or be responsible for them. Many of them are utterly unfit to practise or to assume any responsible position in connection with veterinary medicine, surgery, or sanitary police. It should be widely known that the Royal College takes no cognizance of or responsibility for the abilities of "Existing Practitioners." A like testimony was given by Professor McCall, of the Veterinary College, Glasgow. He certified that James Pollock, blacksmith, Hamilton, had no collegiate training, and consequently was not in possession of a diploma; and as none other than properly-qualified veterinary surgeons can efficiently discharge the duties of inspector under the Act, he hoped that the local authority of Hamilton would not pass over the veterinary profession and give the appointment to an inadequate man. Naturally, one would have supposed, that with such valuable testimony before them the local authority would at once have decided upon the merits of the case. But that authority has not done so. Why it has not done so is one of the unsolved problems of municipal wisdom, or something else. A just regard to the interests of the burgh and the dumb animals themselves, we cannot in any sense hold the appointment to be. We have brought this case under the notice of the profession, because it affects them specially, and bears unjustly upon competent men. If it be the case in any degree that the private orders of the Privy Council over-ride the provisions of the Act of Parliament, the profession are entitled to look into the question, and if need be to have the *order amended.* The Hamilton case is one that might be fairly taken up at the forthcoming annual meeting of the Scottish Veterinary Medical Association, to be held in Edinburgh in February. It must be a disadvantage to the country, and a discredit to the local authority, wherever an unqualified man is pushed into a position the duties of which he cannot honestly discharge.—Yours, etc.,

"A Believer in Professional Training."

IS DRAWING OFF THE SOLES A REMEDY FOR RING-BONES OR SIDE-BONES?

Sir,—More than six months ago this Society ordered proceedings to be taken against a veterinary surgeon, for a brutal operation, very rudely performed by him, called "drawing the sole," *i.e.*, forcibly tearing away the sole of a horse's foot, ostensibly to cure "lameness caused by a small ring-bone or side-bone." The practitioner referred to performed another operation at the same time, viz., deeply firing both fore-limbs from the coronets to the fetlocks. The case was heard at the Cheadle Petty Sessions, and veterinary surgeons (I am sorry to say, as usual) were found to enter the witness-box in support of a cruel operation—under an impression, I cannot doubt, that it was a true remedy for the lameness referred to. One of these (Mr. Greaves, of Manchester) stated in his evidence that drawing the sole is the best-known, and an effectual, remedy for ring-bone and side-bone lameness. The solicitor for the defence, in cross-examination of Inspector Leonard, alleged, or insinuated that the horse on whom the operation was performed had nearly recovered from its lameness as a result of the operation; and Mr.

the integrity and honour of the profession, that I feel compelled to inform my fellow-students that Mr. Carnochan is *not* a member of the Royal College of Veterinary Surgeons, and from the nature of his letter, does not seem likely to become one within the prescribed period. That Mr. Carnochan is a pupil of, or perhaps assistant to, Mr. Campbell, Kirkcudbright, is evident, and that, no doubt, accounts for the extraordinary nature of his communication. The employment of hypodermic injections may not be generally practised, but if Mr. Carnochan is to be taken as a guide, that form of administration would be better let alone. The dose of Inject. morph. hypoderm. quoted as a large dose, say twenty or twenty-five minims, is not calculated to affect a horse either one way or another. Five grains of morphia, hypodermically administered in painful diseases, seldom produce any appreciable effect, and how twenty-five minims Inject. morph. hypoderm. (presumably containing two grains) could modify the progress or symptoms in a case of acute Laminitis is one of those things "no fellow can understand." As Mr. Campbell seems to be the responsible individual in the case cited, perhaps he will be kind enough to state what his object was in administering the medicine mentioned; and at the same time he might throw the sage's mantle over his protégé Carnochan, and explain how he diagnosed Rheumatic Inflammation of the Meninges of the Brain, which soon rendered the animal *comatose*, and caused it to die *without a struggle*. At one time I was a supporter of the pupilage clause, but my views on that subject are now sadly shaken. Fortunately, I think, the enactment of the clause was lost, as this letter of Mr. Carnochan's shows conclusively that there are some practitioners totally unfit to prepare pupils for the profession.—I am, sir, yours, etc.,

A STUDENT.

APPOINTMENT OF A VETERINARY INSPECTOR BY THE TOWN COUNCIL OF HAMILTON.

SIR,—In the month of December, 1883, in the course of public business, and also of public utility, it became incumbent upon the above council to appoint a veterinary inspector for the burgh. Two candidates applied. The one a thoroughly-trained practitioner, with Royal diploma and having had several years' experience in the district; a man of strictly sober habits and stainless character, also bearing the best testimonials from local gentlemen and the College officials. The other, a blacksmith, with no professional training whatever, and, therefore, with no real scientific qualification for the discharge of the duties of the office. From one point of view, it looks as if the town council wished to cast a slur upon the professionally-trained veterinary surgeon. They could hardly have realised the critical difficulties and special scientific knowledge that is often required in dealing with the various diseases of cattle. These diseases are so varied, that none but a properly-trained doctor can efficiently treat them. The fact that many diseases are readily transmitted from the animal to man, and the vast influence that food has on health, are considerations which go to show the importance of having professionally-qualified men as veterinary inspectors. But for some reason or other these considerations have been set aside in this appointment, and the whole profession of veterinary surgery would seem to have been thus slighted. It looks like a complete denial by the majority in the council of the value of professional training and scientific knowledge in the treating the diseases of animals. If this be so in this case, then the same line of action would apply to medical men. The council clearly prefer untrained talent and incompetent professional knowledge to men thoroughly trained and competent. This is quackery with a vengeance. Of course, the council was acting within legal rights. But the legal rights in the case are only

technical. They are not based upon training and professional efficiency, but merely on the fact of being an "Existing Practitioner." But that does not mean a real qualification. It is simply an exemption from the penalty of the Act of Parliament. I have the high authority and testimony of Professor Fleming, President of the Royal College of Veterinary Surgeons, for the statement, that the registration of "Existing Practitioners" implies nothing more than exemption from the penal operation of the Act. The persons so registered have no legal qualification, and are neither better nor worse than they were before registration. The Royal College of Veterinary Surgeons does not, cannot, in any way acknowledge them or be responsible for them. Many of them are utterly unfit to practise or to assume any responsible position in connection with veterinary medicine, surgery, or sanitary police. It should be widely known that the Royal College takes no cognizance of or responsibility for the abilities of "Existing Practitioners." A like testimony was given by Professor McCall, of the Veterinary College, Glasgow. He certified that James Pollock, blacksmith, Hamilton, had no collegiate training, and consequently was not in possession of a diploma; and as none other than properly-qualified veterinary surgeons can efficiently discharge the duties of inspector under the Act, he hoped that the local authority of Hamilton would not pass over the veterinary profession and give the appointment to an inadequate man. Naturally, one would have supposed, that with such valuable testimony before them the local authority would at once have decided upon the merits of the case. But that authority has not done so. Why it has not done so is one of the unsolved problems of municipal wisdom, or something else. A just regard to the interests of the burgh and the dumb animals themselves, we cannot in any sense hold the appointment to be. We have brought this case under the notice of the profession, because it affects them specially, and bears unjustly upon competent men. If it be the case in any degree that the private orders of the Privy Council over-ride the provisions of the Act of Parliament, the profession are entitled to look into the question, and if need be to have the *order amended.* The Hamilton case is one that might be fairly taken up at the forthcoming annual meeting of the Scottish Veterinary Medical Association, to be held in Edinburgh in February. It must be a disadvantage to the country, and a discredit to the local authority, wherever an unqualified man is pushed into a position the duties of which he cannot honestly discharge.—Yours, etc.,

"A Believer in Professional Training."

IS DRAWING OFF THE SOLES A REMEDY FOR RING-BONES OR SIDE-BONES?

Sir,—More than six months ago this Society ordered proceedings to be taken against a veterinary surgeon, for a brutal operation, very rudely performed by him, called "drawing the sole," *i.e.*, forcibly tearing away the sole of a horse's foot, ostensibly to cure "lameness caused by a small ring-bone or side-bone." The practitioner referred to performed another operation at the same time, viz., deeply firing both fore-limbs from the coronets to the fetlocks. The case was heard at the Cheadle Petty Sessions, and veterinary surgeons (I am sorry to say, as usual) were found to enter the witness-box in support of a cruel operation—under an impression, I cannot doubt, that it was a true remedy for the lameness referred to. One of these (Mr. Greaves, of Manchester) stated in his evidence that drawing the sole is the best-known, and an effectual, remedy for ring-bone and side-bone lameness. The solicitor for the defence, in cross-examination of Inspector Leonard, alleged, or insinuated that the horse on whom the operation was performed had nearly recovered from its lameness as a result of the operation; and Mr.

Greaves subsequently in his evidence told the Bench there could be no doubt that the animal would entirely recover in a month or two. Another witness actually stated—"The ring-bones and side-bones completely disappeared after the operation."

Since the date of the hearing the horse has been kept under observation, and I have now to state that, after a lapse of six months, the animal is still very lame from side-bone, and has so been suffering throughout that interval. The owner (Mr. Perry) stated to-day, to my agent, who examined the horse, as follows:—"I don't think he will ever be sound again; he cannot work on the road without suffering severe pain, and I can only use him for a bit of light work on soft land." At the examination it was found that there was "still a great deal of heat in the diseased foot," and pain was expressed by the animal continually lifting its foot and resting it during the interview.

The logic of events in this case is against Mr. Greaves and the few old practitioners who are in favour of drawing soles to cure ring-bones or side-bones. No commentary is needed; a mere statement of the present condition of the animal is an utter refutation of the obsolete theory and pretended cure which you have already exposed in your columns.

Two things, however, should be stated. (1) I am quite sure that Mr. Greaves, though mistaken in this case, is no upholder of cruelty; on the contrary, he is a member of the Committee of the Manchester Branch of this Society. (2) All your readers know that when ring-bones and side-bones are forming, the animals suffer acute pain, and that in the course of time such formations sometimes become callous and painless. This rule will, perhaps, apply to the horse in question; for by-and-by the animal may be cured, as far as pain is concerned, by the formation becoming callous. At present, however, there is still a good deal of heat and pain, as already stated. The firing of the tendons did, no doubt, relieve the overshot fetlocks to some extent; and if that operation had been performed without tearing the sole of the foot, of course no proceedings would have been taken by this Society, which would have regarded such treatment as fairly within surgical practice. (3) In the language of your article in the last August number of your Journal, I would add, "Operations which are needless and painful cannot be defended, and must come under the designation of cruel; and cruelty to animals is a charge which most gravely compromises the good name and the attributes of veterinary surgery when practised by members of the Royal College."—I am, sir, yours faithfully,

JOHN COLAM, *Secretary.*

Royal Society for the Prevention of Cruelty to Animals,
105, Jermyn Street, St. James's, London, S.W.,
January 18th, 1884.

BUFFALOES' MILK.

DEAR SIR,—With reference to "A Veterinary Surgeon's" inquiry regarding the above, having a good deal of Indian experience, perhaps I may be allowed to inform your correspondent that buffalo beef is never used *in India*, by either Europeans or natives, for food, but that the milch animal is kept by both for *milk* only.

This milk is richer (Professor Parkes) in all the ingredients, *i.e.*, than those in either cow, goat, or asses' milk.

The object of the Marquis of Lorne, I should imagine, to be an endeavour to increase *the milk* supply. By doing this through the buffalo, the great advantage would be gained in the conservancy of home-bred cattle becoming more available for meat.

Bareilly, *Nov. 24th.* J. J. P.

TWO SIDES TO A STORY.

SIR,—Under this utterly inapplicable title, some person who attempts to hide his identity behind the signature of "Council-man," in your last number, asserts that the veterinary schools have done nothing for professional progress, and that the individual members of Council ought to have the entire credit of all our advance. That the Council officially and collectively are the authors of all changes, is necessarily true; but that any member of that body should stand up and say "alone I did it," or even "alone *we* did it," is simply impertinent egotism.

Without insisting that the Council have frequently done that which they ought not to have done, and left undone that which they ought to have done, I do maintain that a man may fairly and honestly believe such an accusation open to discussion. Personally, I believe that the Council during the last twelve years has worked well for the common good, and succeeded in achieving a great success, the benefit of which the profession will some day feel. I have also a strong opinion that they would have done much mischief, had not the schools stepped in and convinced the Privy Council that wisdom was not entirely confined to the representatives of the profession. I quite allow that the Council is representative of the profession. When, by the effect of the matriculation examination, the profession is altered, then the Council, still representative, will be somewhat different.

Narrow-minded attacks upon men whose opinions differ from our own, and upon institutions our own deficiencies prevent us from understanding or appreciating, will, probably, exist for all time. Meanwhile, we can only hope that improved education may increase our understanding, and enable us the better to widen our grasp of other men's acts and arguments.

"Council-man" should study carefully the application of the old fable of "The Body and its Members." The head cannot long act if the stomach refuses to do its work, the stomach cannot act at all if the hands do not collect food, and the legs must carry the body about if food is to be collected. The inter-dependence of one part upon another is no more marked in the animal body than in our corporate body. The profession depends upon the schools for a supply of members, and the schools depend upon the profession for their pupils. One is useless without the other. Harmonious working between them is productive of mutual advantage, whilst antagonism means stagnation. The undeniable fact of our rapid and upward progress is, to my mind, one of the strongest evidences of mutual help and forbearance having been forthcoming in recent years.

This progress is not the work of one or two men, or of two or three years. Twenty years ago such questions as an improved scholastic education for pupils, a higher scientific standard of examination for graduates, and a penal clause were debated at our annual meeting, and discussed in our professional periodicals. The want of sound professional feeling, the unwillingness and inability to observe or record correctly, were also faults of our practitioners often referred to. The alteration of these matters was the proximate cause of the founding of veterinary associations, and later of national and international congresses. That our literature and associations instructed our members, made us feel our defects, and imbued us with the determination to remove them, seems to me a self-evident proposition. Had not the mass of the profession been so awakened and aroused to a sense of its position, no Council could ever have forced on the measures which led to our emancipation.

The upward progress of the profession does not depend entirely upon acts of Council. The personal efforts of our professors and practitioners count for something. The impression made by a man of liberal education or high scientific attainments, is not confined to his own circle of clients and acquaintances, but acts directly and widely in favour of the profession to which he

belongs. The strong force of character, the rugged independence and professional munificence of Professor Dick, raised the status of our profession in Edinburgh and throughout Scotland. The high scientific attainments, the unwearying energy, and the great literary power of Professor Gamgee, placed him on a level with the highest European *savants*—his profession reaped the benefit. Though now comparatively lost sight of, the work done by Professor Simmonds has been of inestimable advantage to us. His connection for years with the Royal Agricultural Society of England gave an impetus to the profession we cannot value too highly. These three men contributed greatly to our advance, and they were all professors. Of the three men who represent the profession under the Privy Council, two have been professors. They possess immense opportunities for good or evil, and use them well. Our present staff of professors at each of the four schools work earnestly and well for our mutual benefit. Veterinary science and literature are indebted to them. At most of our medical associations they are forward with papers and in debate. What more can they do? Is all their work bad and selfish? Is a veterinary school like Nazareth, that we must exclaim, "Can any good thing come out of it?" No! certainly no! The schools, the practitioners, and the Council, have all put their shoulders to the wheel in recent years. Had any one of the three determined upon obstruction the other two would simply have made futile efforts to progress. This weak-kneed "Council-man," who cannot tolerate criticism, whose views of a teaching school are on a level with those of a first-year pupil, and whose idea of unity is a dull uniformity, surely speaks for himself alone. He certainly does not represent the Council. Differences are essential to progress; fearless, open expression of opinion is at all times a good and healthy thing.

Let us hear no more of one party'screaming "Alone we did it!" This sort of egotism reminds one too forcibly of the tailor in Russia, who, when the bear entered his hut, climbed up to the rafters, and after his wife had killed the intruder with an axe, came down, and strutting round the dead monster exclaimed, "*We've* killed the brute!" Yours, etc.,

January 11th, 1884. WILLIAM HUNTING.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from A. E. Macgillivray, Banff; J. J. Philips, Bareilly; J. Roberts, Chippenham; "A Believer in Professional Training"; R. W. Burke, Cawnpore; R. Dawson, Ipswich; J. Dowling Allman, London; J. A. Nunn, A.V.D., Lahore; T. H. Barrow, York; W. G. R. A. Cox, Newcastle-on-Tyne; "A Peripatetic"; W. J. Welsby, Liverpool: W. Hunting, London; J. Doyle, Enniscorthy; J. W. Hill, London; W. R. Davis, Isle of Man; H. Kidd, Hungerford; Professor Smith, Toronto; A. Bain, Liverpool.

BOOKS AND PAMPHLETS: *G. Armatage*, The Veterinarian's Pocket Remembrancer; The Medical Annual, and Practitioner's Index; How to Outwit the Horse; *E. Standinger*, Hundemaul Körbe und Hundefuhrwerke; Treatment of Cattle Disease in the Punjab; *H. Putz*, Ueber die Milzbrandimpfungen; *W. Zopf*, Die Spaltpilze; *D. Johne*, Ueber Athmung, Athmungsluft und Luftverderbniss; Transactions of the Pathological Society of London.

JOURNALS, ETC.: *Der Thierarzt; Lancet; Wochenschrift für Thierheilkunde und Viehzucht; L'Echo des Sociétés et Associations Vétérinaires de France; La Presse Vétérinaire; Live Stock Journal; American Veterinary Review; La Clinica Veterinaria; Recueil de Médecine Vétérinaire; Repertorium der Thierheilkunde; Archives Vétérinaire; Journal de Médecine Vétérinaire et de Zootechnie; Annales de Médecine Vétérinaire; Mark Lane Express; Revue Vétérinaire; American Live Stock Journal; Der Hufschmied; British Medical Journal.*

NEWSPAPERS: *Carlisle Express; North China Daily News; Eastern Counties Gazette; Leeds Mercury.*